

HIGH VOLTAGE/HIGH POWER CERAMIC CAPACITORS AND HIGH VOLTAGE RESISTORS

CATALOG NO. 62-09



muRata **ERIE**®
MURATA ERIE NORTH AMERICA

Murata Erie's high voltage, high power ceramic capacitors are made by firing silver electrodes to both faces of a ceramic element, then soldering terminals on these electrodes and coating with humidity-resistant insulating paint. The ceramic element is made by mixing various hardening bonding agents into the raw ceramic powders and then forming the powder into shapes and firing under a high temperature of over 1,000°C. The silver electrodes are directly applied with several layers of silver paste to the surface of the ceramic element, which is fired at a temperature of over 750°C. Metallic terminals are then soldered to the electrodes, and by doing so, the resistance and the heating by Joule loss is minimized when a large current is applied.

The N4700 temperature coefficient are strontium titanite dielectrics (i.e. DHS and DCU) featuring higher insulation resistance, lower dissipation factors, and more linear thermal drift characteristics as well as outstanding dielectric (capacitive) uniformity. For power applications this material has exceptional reliability.

The flame resistant coating of the DHR series is in conformity with UL94V-0 specification.

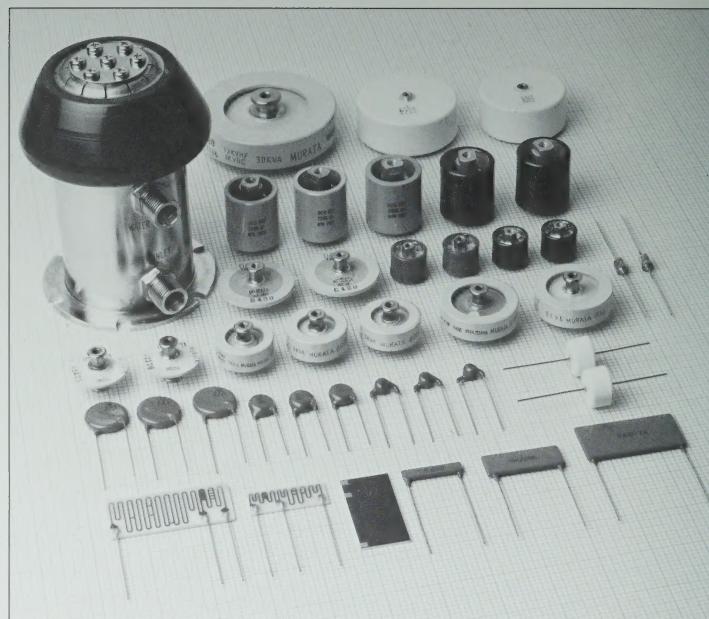


TABLE OF CONTENTS

Capacitors				
Series	Capacitance (pF)	Voltage (KV)	TC	Page
DHR (Leaded)	220-1000 100-2200	7.5-15 7.5-15	N4700 Y5P/Z5U	4-5 6-7
DHS (Low Frequency)	140-8000 180-9300	10-40 10-40	N4700 Z5V	8-9 10-11
DCC (High Frequency)	3-250 500-1000 500	5-20 5 15	NPO/N750 X5U N330	12-13 12-13 12-13
DAU (High Frequency)	50-2000 10,000 10-100 20-300	2-7 3, 5, 10 3-9 10-14	N750 Z5V, N470 P100 NPO	14-15 16 16 16
DCU (High Frequency)	10-200 50-500 50-2500	6-23 10-35 3-17	P100 NPO N750	17 17 18
DCU/DAU Specifications				19
DCT/DAT (High Frequency)	50-2500	3-32	UJ, CH, AH	20-22
Custom Capacitor/Resistor Specification Form				23-24
DHL/DHG	750-1000	10-15	Y5P	25
DAF/DCF	500-1000	3.7-50	N750	26-27
DE (High Frequency)	2500-5000	17-22	UJ	28-29
Resistors				
Series	Resistance (MΩ)	Voltage (KV)	Page	
PA/PB	1-5000	20-33	30	
DA	1-3000	10-25	31	
FA/FB	1-3000	20-25	31	

NOTES FOR ORDERING HIGH FREQUENCY POWER CERAMIC HVA CAPACITORS

1. Selection:

Before ordering these capacitors, specify the following conditions at which the capacitor shall be used.

(1) Operating Ambient Temperature:

Take the maximum anticipated ambient temperature and use it for selecting the rated power capacity and the maximum current capacity. Include such considerations as nearby radiating heat sources (i.e., vacuum tubes, etc.).

(2) Capacitance Temperature Characteristics:

When temperature compensation of the circuit is required, specify N4700, N750, NPO or P100. When no temperature compensation is required, check characteristic Y5P, X5U, Z5V.

(3) Capacitance and its Tolerance:

Choose capacitance and tolerance from the standard products. The capacitance tolerances to $\pm 5\%$ may be specified.

(4) Rated DC Voltage:

Specify so that the values of DC voltage and R.F. voltage (peak-to-peak value)

applied to the capacitor are below DC rated voltage.

(5) R.F. Rated Voltage:

Specify that R.F. voltage applied to the capacitor (peak-to-peak value) remains below R.F. rated voltage (peak-to-peak value).

(6) Rated Power Capacity:

Power load on the capacitor must remain below rated power capacity corresponding to the operating ambient temperature. With DA and DC series, consider Class I (W_{L1}) when operating ambient temperature is 50°C, Class II (W_{L2}) 70°C. With DCC 500 series, keep temperature rise to less than 30°C when operating ambient temperature is 25°C. Investigate Class III when desiring temperature rise of the capacitor to be less than 20°C while operating ambient temperature is 70°C. When using the capacitor at other than standard ambient temperature or when forced cooling is employed, consult the High Frequency Power Ceramic Capacitor Technical Manual (Cat. No. C42E-1).

(7) Maximum Current Capacity:

The current into the capacitor must remain below maximum current capacity corresponding to the operating

ambient temperature. Use DC 500 series within the specified ratings.

(8) Type:

Choose the type capacitor with the smallest dimension among the qualified products, or when requiring temperature compensation for higher ratings, or when other requirements do not match, choose a more suitable capacitor from the capacitors of other temperature characteristics so that the most economical and smallest product available is utilized.

When no applicable product is found through the above procedure, investigate reducing capacitor ratings by serial or parallel connecting the capacitors to determine required types and number of capacitors.

2. Specification of Model:

When ordering a capacitor, please specify either model number or type, characteristics, capacitance, capacitance tolerance, rated R.F. voltage, rated DC voltage and rated power capacity.

APPLICATIONS

Applications	Capacitors								Resistors		
	DHR	DHS	DHG	DCC	DCA	DAT	DAF	DE	PA/PB	DA	FA/FB
Radar				X	X	X	X		X	X	X
Beacons				X	X	X	X				
Antenna Systems				X	X	X	X				
Communications				X	X	X	X				
Transmitters				X	X	X	X	X			
X-Ray Equipment	X	X	X	X	X	X	X	X	X	X	X
Induction Htrs.				X	X	X	X	X			
Welding		X		X				X			
High Vol. Pwr. Sup.	X	X	X						X	X	X
High Freq. Pwr. Sup				X	X	X	X	X			
TV/CRT Pwr. Sup.	X	X	X						X	X	X
Pwr. Xmission Lines								X	X		
Copy Machines	X	X	X						X	X	X
Lasers		X		X					X	X	X
Insect Killers	X	X									
Electro Paint Spray		X									
NMR Imaging				X							
Plasma Cleaning				X	X	X	X				
HV Test & Measurement Equipment	X	X	X	X	X	X	X		X	X	X

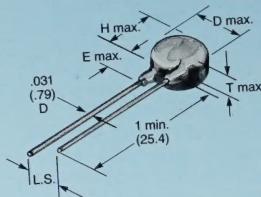
HIGH VOLTAGE CERAMIC DISC CAPACITORS DHR SERIES E.I.A. CLASS I

10 & 15 KVDC

APPLICATIONS

- For high voltage power supplies in Color and B/W TV's (Doubler, Tripler).
- For high voltage power supplies for X-ray tubes, Gas lasers, Copy machines (ppc), Air cleaners, Oscilloscopes, etc.
- Others (Insect killers).

DIMENSIONS: in. (mm)



PART NUMBERING SYSTEM

TYPE DHR19	TEMP. CHAR. N4700	CAPACITANCE 102	TOL. M	VOLTAGE 10KV
CAPACITOR TYPE AND SIZE	TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCES Per standard EIA specifications. See page 6	CAPACITANCE VALUE Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	CAPACITANCE TOLERANCE M = $\pm 20\%$	VOLTAGE Identified by a two- digit number.

PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE (KVDC)	DIMENSIONS: in. (mm)				
			D max.	H max.	T max.	L.S.	E max.
DHR12 N4700 221M 10KV	220	10	.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 N4700 331M 10KV	330	10	.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 N4700 471M 10KV	470	10	.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR17 N4700 681M 10KV	680	10	.669 (17)	.700 (17.8)	.275 (7)	.375 (9.5)	.197 (5)
DHR19 N4700 102M 10KV	1,000	10	.748 (19)	.791 (20.1)	.275 (7)	.500 (12.7)	.197 (5)
DHR9 N4700 820M 15KV	82	15	.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR9 N4700 101M 15KV	100	15	.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 N4700 151M 15KV	150	15	.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 N4700 221M 15KV	220	15	.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR15 N4700 331M 15KV	330	15	.590 (15)	.630 (16)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR17 N4700 471M 15KV	470	15	.669 (17)	.697 (17.7)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR19 N4700 681M 15KV	680	15	.748 (19)	.787 (20)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR22 N4700 102M 15KV	1,000	15	.866 (22)	.909 (23.1)	.330 (8.4)	.500 (12.7)	.197 (5)

TYPICAL MARKING: DHR and DHD Series

Manufacturer's Identification
Capacitance (in 3-digit code)
Tolerance (EIA Code)
T.C.
Rated Voltage

HIGH VOLTAGE CERAMIC DISC CAPACITORS DHR SERIES SPECIFICATIONS

Temperature Range

-30 to +85°C.

Capacitance

Capacitance shall be within the specified tolerance when measured at temperature of 25°C and 1 ± 0.1 kHz with 1.0 to 5.0 Vrms.

Dissipation Factor

Dissipation Factor shall be less than 1.0% when measured at temperature of 20°C and 1 ± 0.1 kHz with 1.0 to 5.0 Vrms.

Insulation Resistance

Insulation resistance shall exceed 10,000 MΩ when measured after 1.0 minute electrification time with 500 VDC through the resistor at 1 MΩ.

Dielectric Strength (between terminals)

Capacitor shall not be damaged when 1.5 times of rated DC voltage applied between terminals for 30 seconds through a suitable resistor in a series to limit the charging current to 50 mA max.

Encapsulation

Ceramic disc is conformally coated in an epoxy resin.

Life Test

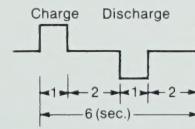
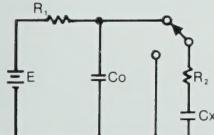
Appearance	:	no visible damage.
Capacitance Change	:	to be within $\pm 10\%$
D.F.	:	2.5% max.
Insulation resistance	:	1,000 MΩ min.
Dielectric strength	:	no failure
When tested as follows,		
Temperature	:	$85 \pm 3^\circ$
Applied voltage	:	1.25 times rated voltage
Period of test	:	$1000 \frac{+48}{-0}$ hours

To be measured at 4 hours after placed at room condition.

Charge-Discharge Test

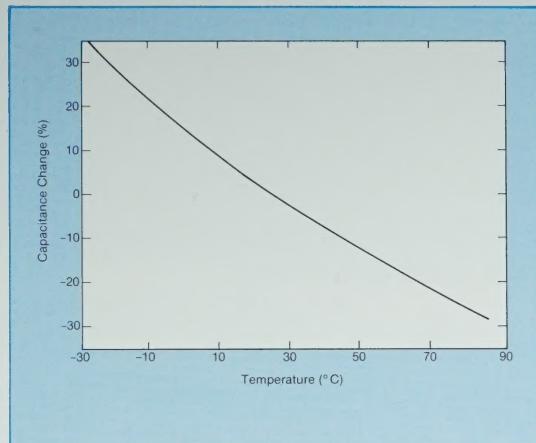
Appearance	:	no visible damage
Capacitance Change	:	to be within $\pm 10\%$
D.F.	:	2.5% max.
Insulation resistance	:	1,000 MΩ min.
When tested as follows,		
Temperature	:	room condition
Applied voltage	:	rated voltage
Period time	:	charge for 1 sec. discharge for 1 sec. after 2 sec. 6 sec.
Cycle numbers	:	20,000 cycles
Circuit	:	see below

To be measured at 1-2 hours after placed at room condition.

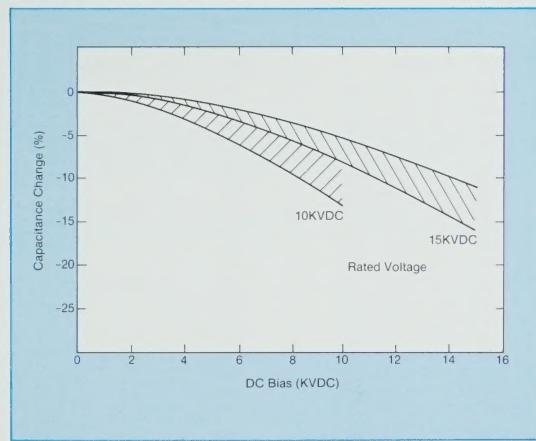


E : rated voltage
R1 : circuit protective resistor
R2 : current limiting resistor (10 Amp.)
Co : supplied energy for Cx. $Co = 10Cx$
Cx : specimen

TEMPERATURE CHARACTERISTICS

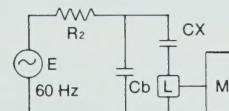


CAPACITANCE VS. DC BIAS



Corona Test

Corona shall be measured in the following test circuit. Corona shall be 50 picocoulomb max. in direct reading at 2 KVrms (for 10KV rated voltage) or 3 KVrms (for 15KV rated voltage).



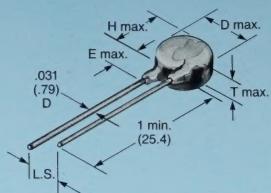
E : power supply (corona free)
R : circuit protective resistor
CB : by-pass capacitor
Cx : specimen
L : corona pulse pick-up coil
M : corona detector; tuning type

HIGH VOLTAGE CERAMIC DISC CAPACITORS

DHR SERIES E.I.A. CLASS II

7.5, 10 & 15 KVDC

DIMENSIONS: in. (mm)



Murata Erie's new high voltage ceramic capacitors are specifically designed to meet the stringent requirements of high voltage power supply applications and are coated with a non-flammable resin.

These capacitors are manufactured to extremely high standards and provide an exceptional degree of reliability under the most severe operating conditions.

PART NUMBERING SYSTEM

TYPE DHR20	TEMP. CHAR. Y5P	CAPACITANCE 102	TOL. M	VOLTAGE 10KV
CAPACITOR TYPE AND SIZE	TEMPERATURE CHARACTERISTICS Temperature Range Y5 = -30°C to +85°C; Z5 = +10°C to +85°C MAX. CAP. CHANGE OVER TEMP. RANGE P = ±10%; U = +22, -56%	CAPACITANCE VALUE Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	CAPACITANCE TOLERANCE M = ±20% Z = +80%, -20%	VOLTAGE Identified by a two-digit number.

DHR Series 7.5 to 15KV

PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE (KVDC)	DIMENSIONS: in. (mm)				
			D max.	H max.	T	L.S. max.	E
DHR9 Y5P 101M 7.5KV	100	7.5	.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 151M 7.5KV	150		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 221M 7.5KV	220		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR10 Y5P 331M 7.5KV	330		.394 (10)	.433 (11)	.275 (7)	.375 (9.5)	.157 (4)
DHR12 Y5P 471M 7.5KV	470		.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.157 (4)
DHR13 Y5P 681M 7.5KV	680		.512 (13)	.551 (14)	.275 (7)	.375 (9.5)	.157 (4)
DHR15 Y5P 102M 7.5KV	1,000		.590 (15)	.631 (16)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Z5U 471Z 7.5KV	470		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Z5U 681Z 7.5KV	680		.394 (10)	.433 (11)	.275 (7)	.375 (9.5)	.157 (4)
DHR11 Z5U 102Z 7.5KV	1,000		.433 (11)	.472 (12)	.275 (7)	.375 (9.5)	.157 (4)
DHR13 Z5U 152Z 7.5KV	1,500	10	.512 (13)	.551 (14)	.275 (7)	.375 (9.5)	.157 (4)
DHR15 Z5U 222Z 7.5KV	2,200		.590 (15)	.631 (16)	.275 (7)	.375 (9.5)	.157 (4)
DHR9 Y5P 151M 10KV	150		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.197 (5)
DHR9 Y5P 221M 10KV	220		.354 (9)	.394 (10)	.275 (7)	.375 (9.5)	.197 (5)
DHR12 Y5P 331M 10KV	330		.472 (12)	.512 (13)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 Y5P 471M 10KV	470	15	.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR15 Y5P 681M 10KV	680		.590 (15)	.630 (16)	.275 (7)	.375 (9.5)	.197 (5)
DHR17 Y5P 102M 10KV	1,000		.669 (17)	.700 (17.8)	.275 (7)	.500 (12.7)	.197 (5)
DHR24 Y5P 202M 10KV	2,000		.945 (24)	.984 (25)	.275 (7)	.622 (15.8)	.197 (5)
DHR9 Y5P 101M 15KV	100		.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR9 Y5P 151M 15KV	150		.354 (9)	.394 (10)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 Y5P 221M 15KV	220		.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR12 Y5P 331M 15KV	330		.472 (12)	.512 (13)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR15 Y5P 471M 15KV	470		.590 (15)	.630 (16)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR17 Y5P 681M 15KV	680		.669 (17)	.700 (17.8)	.330 (8.4)	.500 (12.7)	.197 (5)
DHR20 Y5P 102M 15KV	1,000		.787 (20)	.830 (21.1)	.330 (8.4)	.500 (12.7)	.197 (5)

TYPICAL MARKING: DHR Series

Manufacturer's Identification
Capacitance (in pF)
Tolerance (EIA Code)

T.C.
Rated Voltage

HIGH VOLTAGE CERAMIC DISC CAPACITORS

HIGH K - DHR SERIES CLASS II SPECIFICATIONS

muRata **ERIE**

7.5, 10 & 15 KVDC

Temperature Range

-30 to +85°C.

Capacitance

Capacitance shall be within the specified tolerance when measured at temperature of 25°C and 1±0.1KHz with 1.0 to 5.0Vrms.

Dissipation Factor

Dissipation Factor shall be less than 2.5% when measured at temperature of 25°C and 1±0.1KHz with 1.0 to 5.0Vrms.

Insulation Resistance

Insulation resistance shall exceed 10,000MΩ when measured after 1.0 minute electrification time with 500VDC through the resistor at 1MΩ.

Dielectric Strength (between terminals)

Capacitor shall not be damaged when 1.5 times of rated DC voltage applied between terminals for 30 seconds through a suitable resistor in a series to limit the charging current to 50mA max.

Encapsulation

Ceramic disc is conformally coated in an epoxy resin.

Life Test (Conditions)

When tested as follows:

Temperature	: 85±3°
Applied voltage	: 1.25 times rated voltage
Period of test	: 1000 ⁺⁴⁸ / ₀ hours

To be measured at 4 hours after placed at room condition.

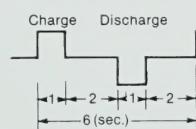
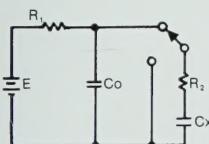
Appearance	: no visible damage
Capacitance Change	: ±10% max. for char. Y5P
	: ±20% max. for char. Z5U
D.F.	: 5% max.
Insulation resistance	: 1,000MΩ min.
Dielectric strength	: no failure

Charge-Discharge Test

tested as follows:

Temperature	: 25°C
Applied voltage	: rated voltage
Period time	: charge for 1 sec. after 2 sec.
Cycle numbers	: 20,000 cycles
Circuit	: see below

To be measured at 1-2 hours after test at room condition.



E : rated voltage

R1 : circuit protective resistor

R2 : current limiting resistor (10 Amp.)

Co : supplied energy for Cx. Co = 10Cx

Cx : specimen

Appearance

: no visible damage

Capacitance Change

: ±10% max. for char. Y5P

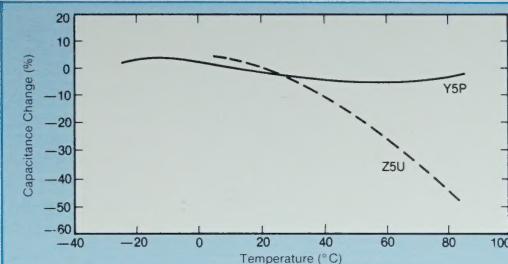
: ±20% max. for char. Z5U

: 5% max.

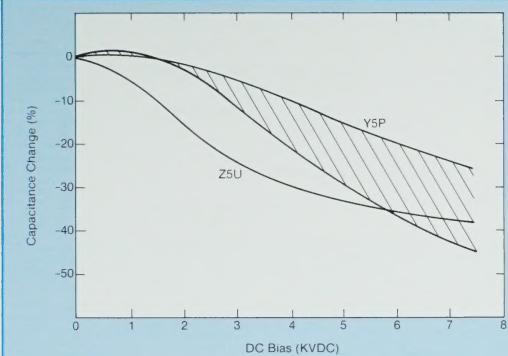
Dissipation Factor

: 1,000MΩ min.

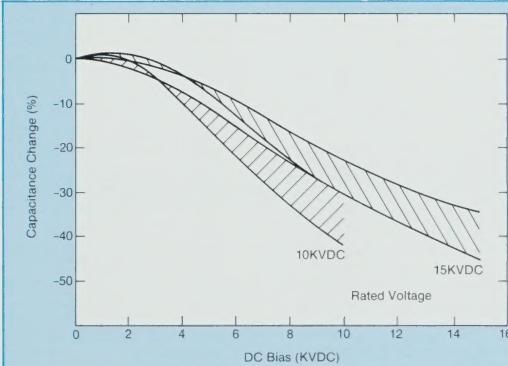
TYPICAL TEMPERATURE CHARACTERISTICS



CAPACITANCE VS. DC BIAS 7.5 KV

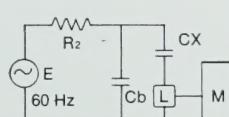


CAPACITANCE VS. DC BIAS 10 & 15 KV



Corona Test

Corona shall be measured in the following test circuit. Corona shall be 50 picocoulomb max. in direct reading at 2KVrms (for 10KV rated voltage) or 3KVrms (for 15KV rated voltage).

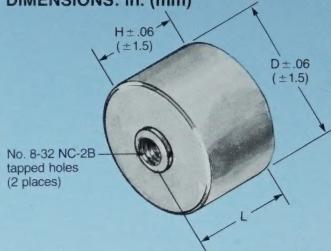


E	: power supply (corona free)
R	: circuit protective resistor
Cb	: by-pass capacitor
Cx	: specimen
L	: corona pulse pick-up coil
M	: corona detector; tuning type

HIGH VOLTAGE CERAMIC DISC CAPACITORS DHS SERIES E.I.A. CLASS I

10 to 40 KVDC

DIMENSIONS: in. (mm)



Murata Erie's new High Voltage Ceramic Capacitors DHS N4700 series is designed to meet the stringent requirements of high voltage applications and feature a low dissipation factor and a low voltage coefficient.

FEATURES

- Epoxy resin encapsulated
- Small size
- Low dissipation factor and low heating value
- Linear temperature characteristic
- Low DC, AC-voltage coefficient

APPLICATIONS

- HV DC power supplies
- Lightning arrester voltage distribution systems
- Electron microscopes, synchroscopes
- Gas lasers
- Electrostatic copying machines

PART NUMBERING SYSTEM

TYPE DHS20	TEMP. CHAR. N4700	CAPACITANCE 561	TOL. M	VOLTAGE 10KV
CAPACITOR TYPE AND SIZE	TEMPERATURE CHARACTERISTICS AND T.C. TOLERANCES Per standard EIA Specifications See Page 6	CAPACITANCE VALUE Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	CAPACITANCE TOLERANCE M = ± 20%	VOLTAGE Identified by a two-digit number in KVDC.

	CAPACITANCE (pF)	WORKING VOLTAGE		TEST VOLTAGE (KVDC)	DIMENSIONS: in. (mm)		
		KVDC	KVAC (60Hz)		D	L	H
DHS20 N4700 561M-10KV	560				.787 (20)		
DHS30 N4700 122M-10KV	1,200				1.18 (30)		
DHS30 N4700 182M-10KV	1,800				1.18 (30)		
DHS38 N4700 282M-10KV	2,800				1.49 (38)		
DHS52 N4700 502M-10KV	5,000				2.04 (52)		
DHS60 N4700 802M-10KV	8,000				2.36 (60)		
DHS20 N4700 371M-15KV	370				.787 (20)		
DHS30 N4700 801M-15KV	800				1.18 (30)		
DHS30 N4700 112M-15KV	1,100				1.18 (30)		
DHS38 N4700 192M-15KV	1,900				1.49 (38)		
DHS52 N4700 342M-15KV	3,400				2.04 (52)		
DHS60 N4700 532M-15KV	5,300				2.36 (60)		
DHS20 N4700 281M-20KV	280				.787 (20)		
DHS30 N4700 601M-20KV	600				1.18 (30)		
DHS30 N4700 881M-20KV	880				1.18 (30)		
DHS38 N4700 142M-20KV	1,400				1.49 (38)		
DHS52 N4700 252M-20KV	2,500				2.04 (52)		
DHS60 N4700 402M-20KV	4,000				2.36 (60)		
DHS20 N4700 191M-30KV	190				.787 (20)		
DHS30 N4700 401M-30KV	400				1.18 (30)		
DHS30 N4700 591M-30KV	590				1.18 (30)		
DHS38 N4700 941M-30KV	940				1.49 (38)		
DHS52 N4700 172M-30KV	1,700				2.04 (52)		
DHS60 N4700 272M-30KV	2,700				2.36 (60)		
DHS20 N4700 141M-40KV	140				.787 (20)		
DHS30 N4700 301M-40KV	300				1.18 (30)		
DHS30 N4700 441M-40KV	440				1.18 (30)		
DHS38 N4700 701M-40KV	700				1.49 (38)		
DHS52 N4700 132M-40KV	1,300				2.04 (52)		
DHS60 N4700 202M-40KV	2,000				2.36 (60)		

TYPICAL MARKING

Manufacturer's Identification
Capacitance (in 3-digit code)
Tolerance (EIA Code)
Rated Voltage
Date Code of Mfg.
T.C.

HIGH VOLTAGE CERAMIC DISC CAPACITORS DHS SERIES SPECIFICATIONS

muRata ER^{IE}

10 to 40 KVDC

Temperature Range

Operating: -30 to $+85^\circ\text{C}$
Storage: -40°C to $+125^\circ\text{C}$

Capacitance and Tolerance

Capacitance change shall exceed $\pm 20\%$ when measured at $1\text{KHz} \pm 0.1\text{KHz}$ at 25°C with not more than $5 \pm 0.05\text{VRms}$, AC applied during measurement.

Dissipation Factor

The maximum dissipation factor for these capacitors shall be 0.5% .

Dissipation factor shall be measured at a frequency of $1\text{KHz} \pm 0.1\text{KHz}$ at 25°C with not more than $5 \pm 0.05\text{VRms}$, AC applied during measurements.

Temperature Characteristics

Characteristic	Temp. Range	Base Temp.	Temp. Coeff.
N4700	-30°C to $+85^\circ\text{C}$	20°	$(-4,700 \pm 1,000) \times 10^{-6}/^\circ\text{C}$

Dielectric Strength Test

These capacitors shall withstand the specified test voltage for 1 minute through a current-limiting resistor of $1,000\Omega$.

Insulation Resistance

The minimum value of insulation resistance shall be not less than $10,000\text{M}\Omega$ at 25°C .

Measurements shall be made after a 1 minute charge at 500VDC voltage through a current limiting resistor which shall be not greater than $10\text{M}\Omega$.

Humidity Resistance

After exposure for a period of 100 hours to an atmosphere of 95% relative humidity at a temperature of $+40^\circ\text{C}$, capacitors shall have a minimum insulation resistance of $5,000\text{M}\Omega$ and a maximum dissipation factor of 1.5%. Twenty-four hours after removal from the test chamber, capacitors shall be measured in accordance with section 3 and 6.

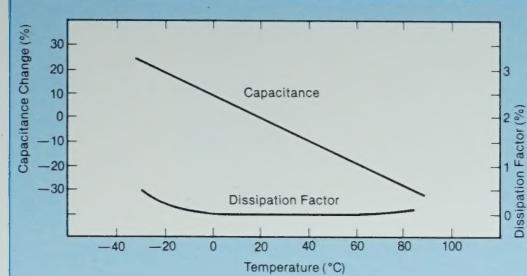
Life Test

These capacitors shall withstand a test potential of 1.5 times the rated DC voltage for a period of 1,000 hours at an ambient temperature of $+85^\circ\text{C}$.

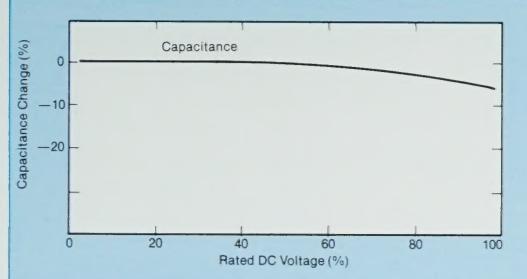
Encapsulation

Ceramic is enclosed in a molded epoxy resin.

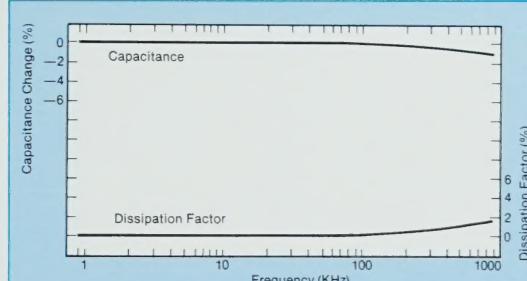
TYPICAL TEMPERATURE CHARACTERISTICS



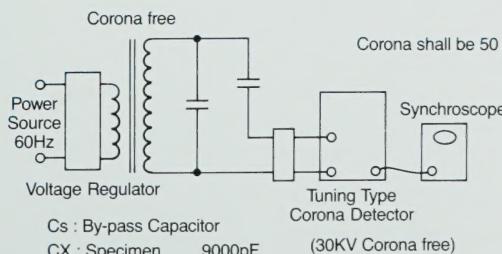
TYPICAL VOLTAGE COEFFICIENT



TYPICAL FREQUENCY CHARACTERISTICS

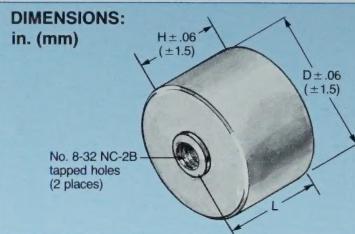


Corona Test



**HIGH VOLTAGE
CERAMIC CAPACITORS
DHS SERIES E.I.A. CLASS III**

10 to 40 KVDC



FEATURES

- Epoxy resin encapsulated
- Small size
- Highly reliable internal construction
- Wide selection of values
- Up to 40 KVDC working voltage

APPLICATIONS

- Electrostatic copying machines
- Electron microscopes, synchroscopes
- CRT power supplies
- Lightning arrestor voltage distribution systems
- HVDC power supplies

PART NUMBERING SYSTEM

TYPE DHS20	TEMP. CHAR. Z5V	CAPACITANCE 681	TOL. Z	VOLTAGE 10KV
CAPACITOR TYPE AND SIZE	TEMPERATURE CHARACTERISTICS Temperature Range Z5 = +10°C to +85°C MAX. CAP. CHANGE OVER TEMP. RANGE V = +22%, -82%	CAPACITANCE VALUE Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	CAPACITANCE TOLERANCE Z = + 80%, - 20%	VOLTAGE Identified by a two-digit number in KVDC.

PART NUMBER	CAPACITANCE (pF)	WORKING VOLTAGE KVDC	TEST VOLTAGE KVDC	DIMENSIONS: in. (mm)		
				D max.	L	H
DHS20 Z5V 681Z-10KV	680	10	15	.787 (20)	.75 (19)	.66 (17)
	1,200			.94 (24)	.74 (19)	.66 (17)
	2,000			1.18 (30)	.75 (19)	.66 (17)
	3,200			1.49 (38)	.74 (19)	.66 (17)
	4,700			1.69 (43)	.75 (19)	.66 (17)
	6,500			2.04 (52)	.74 (19)	.66 (17)
	9,300			2.24 (57)	.75 (19)	.66 (17)
	9,300			2.36 (60)	.74 (19)	.66 (17)
DHS20 Z5V 471Z-15KV	470	15	23	.787 (20)	.90 (23)	.82 (21)
	800			.94 (24)	.90 (23)	.82 (21)
	1,300			1.18 (30)	.90 (23)	.82 (21)
	2,200			1.49 (38)	.90 (23)	.82 (21)
	3,200			1.69 (43)	.90 (23)	.82 (21)
	4,600			2.04 (52)	.90 (23)	.82 (21)
	5,800			2.24 (57)	.90 (23)	.82 (21)
	6,500			2.36 (60)	.90 (23)	.82 (21)
DHS20 Z5V 351Z-20KV	350	20	30	.787 (20)	1.02 (26)	.94 (24)
	600			.94 (24)	1.02 (26)	.94 (24)
	1,000			1.18 (30)	1.02 (26)	.94 (24)
	1,600			1.49 (38)	1.02 (26)	.94 (24)
	2,400			1.69 (43)	1.02 (26)	.94 (24)
	3,300			2.04 (52)	1.02 (26)	.94 (24)
	4,300			2.24 (57)	1.02 (26)	.94 (24)
	4,800			2.36 (60)	1.02 (26)	.94 (24)
DHS20 Z5V 261Z-30KV	260	30	45	.787 (20)	1.33 (34)	1.25 (32)
	460			.94 (24)	1.33 (34)	1.25 (32)
	780			1.18 (30)	1.33 (34)	1.25 (32)
	1,200			1.49 (38)	1.33 (34)	1.25 (32)
	1,800			1.69 (43)	1.33 (34)	1.25 (32)
	2,500			2.04 (52)	1.33 (34)	1.25 (32)
	3,300			2.24 (57)	1.33 (34)	1.25 (32)
	3,600			2.36 (60)	1.33 (34)	1.25 (32)
DHS20 Z5V 181Z-40KV	180	40	60	.787 (20)	1.61 (41)	1.53 (39)
	340			.94 (24)	1.61 (41)	1.53 (39)
	570			1.18 (30)	1.61 (41)	1.53 (39)
	920			1.49 (38)	1.61 (41)	1.53 (39)
	1,300			1.69 (43)	1.61 (41)	1.53 (39)
	1,900			2.04 (52)	1.61 (41)	1.53 (39)
	2,400			2.24 (57)	1.61 (41)	1.53 (39)
	2,700			2.36 (60)	1.61 (41)	1.53 (39)

TYPICAL MARKING

Manufacturer's
Identification
Capacitance (in pF)
Tolerance (EIA Code)
Rated Voltage
Date Code of Mfg.

HIGH VOLTAGE CERAMIC CAPACITORS

DHS SERIES SPECIFICATIONS

muRata ERiE

10 to 40 KVDC

Temperature Range

Operating: -30°C to $+85^{\circ}\text{C}$
Storage: -40°C to $+125^{\circ}\text{C}$

Capacitance and Tolerance

Characteristic: Z5V

Temp. Range: -10°C to $+85^{\circ}\text{C}$

Cap. Change: Within $\pm 22\%$, -82% of 25°C value (Within a given lot, $\pm 10\%$ of the mean value is typical)

Capacitance shall be measured at a frequency of $1\text{KHz} \pm 0.1\text{KHz}$ at 25°C with not more than $5 \pm 0.5\text{VRms}$ AC applied during measurement.

Dissipation Factor

The maximum dissipation factor for these capacitors shall be 1.5% .

Dissipation factor shall be measured at a frequency of $1\text{KHz} \pm 0.1\text{KHz}$ at 25°C with not more than $5 \pm 0.5\text{VRms}$ AC applied during measurements.

Dielectric Strength Test

These capacitors shall withstand the specified test voltage for 1 minute through a current-limiting resistor of 1000Ω .

Ultimate Voltage Breakdown Test

These capacitors shall be capable of withstanding a DC potential of twice the rated DC voltage for a period of 10 seconds. The test voltage shall be applied at a rate not greater than $10\text{KV}/\text{second}$.

Insulation Resistance

The minimum value of insulation resistance shall be not less than $10,000\text{M}\Omega$.

Measurements shall be made after a 1 minute charge at 500V DC voltage through a current limiting resistor which shall be not greater than $10\text{M}\Omega$.

Humidity Resistance

After exposure for a period of 100 hours to an atmosphere of 95% relative humidity at a temperature of $+40^{\circ}\text{C}$, capacitors shall have a minimum insulation resistance of $5000\text{M}\Omega$ and a maximum dissipation factor of 2%. Twenty-four hours after removed from the test chamber, capacitors shall be measured in accordance with Section 3 and 6.

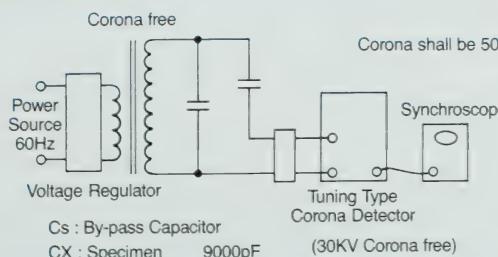
Life Test

These capacitors shall withstand a test potential of 1.5 times the rated DC voltage for a period of 1000 hours at an ambient temperature of $+85^{\circ}\text{C}$.

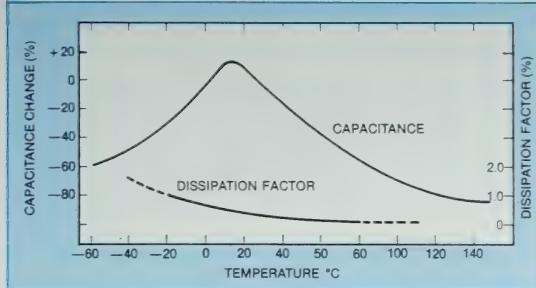
Encapsulation

Ceramic is enclosed in a molded epoxy resin.

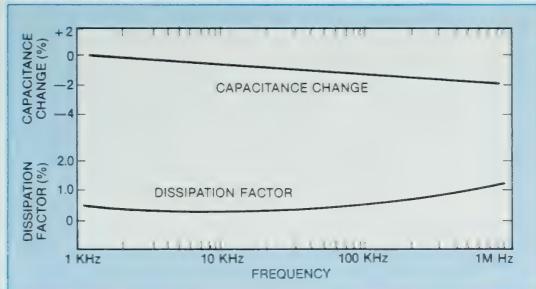
Corona Test



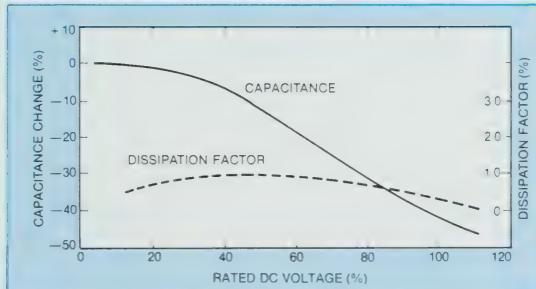
TYPICAL TEMPERATURE CHARACTERISTICS



TYPICAL FREQUENCY CHARACTERISTICS



TYPICAL VOLTAGE COEFFICIENT



POWER CERAMIC CAPACITORS

DCC Series



FEATURES

- Rugged construction, small size and light weight
- High voltage and power capability
- High "Q" and IR
- Low series inductance

APPLICATIONS

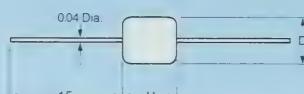
- Radio communication equipment
- Small broadcasting equipment
- High frequency power supplies for high-frequency heating equipment and ultrasonic appliances
- Testing and measuring instruments

PART NUMBERING SYSTEM

		DCC510	N750	101	K
TYPE DCC	TEMP. CHARACTERISTICS	CAPACITANCE			CAPACITANCE TOLERANCE
		Code	Cap. Value (pF)	Code	Cap. Tol.
NPO	0 ± 60 ppm/°C	030	3	D	±0.5pF
N750	-750 ± 120 ppm/°C	100	10	K	±10%
N3300	-3300 ± 500 ppm/°C	101	100	M	±20%
X5U	+22 to -56%	102	1000		

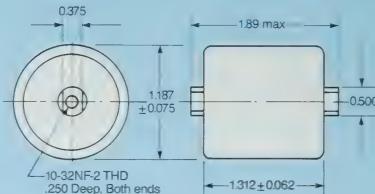
DIMENSIONS: inches

DCC505, DCC504, DCC503 Series

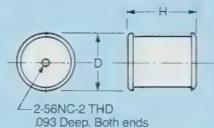


TYPE	H ± 0.8	D ± 0.8
DCC505	.343	.250
DCC504	.375	.375
DCC503	.473	.500

DCC507 Series

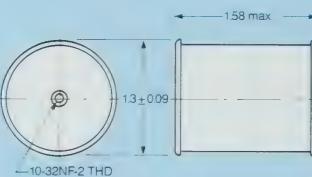


DCC515, DCC514, DCC513 Series

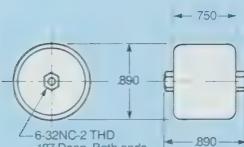


TYPE	H ± 0.8	D ± 0.8
DCC515	.390	.312
DCC514	.422	.437
DCC513	.484	.562

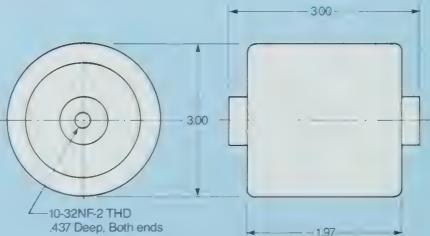
DCC517 Series



DCC510, DCC518 Series



DCC509 Series



SPECIFICATIONS

1. Operating temperature range

-55°C to +85°C

2. Storage temperature

-55°C to +100°C

3. Capacitance

- T.C. series

Capacitance shall be measured at a frequency of $1\text{MHz} \pm 100\text{kHz}$ at 25°C with not more than 5Vrms. Capacitance shall be within the specified capacitance tolerance.

- Hi-K series

Capacitance shall be measured at a frequency of $1000\text{Hz} \pm 100\text{Hz}$ at 25°C with not more than 5Vrms. Capacitance shall be within the specified capacitance tolerance.

4. Capacitance Tolerance

Capacitance tolerance as shown below.

5. Rated Voltage

Rated voltage as shown below.

6. Withstanding Voltage

There shall be no damage when the specified test voltage is applied for 60 sec. at room temperature.

7. Insulation Resistance

Insulation resistance shall be measured at 500V DC for 60 sec. through a resistor of less than 1MΩ. Insulation resistance shall be 10000 MΩ min.

8. Q Factor or Dissipation Factor

- T.C. series

Q factor shall be measured at a frequency of $1000\text{kHz} \pm 100\text{kHz}$ at 25°C with not more than 5Vrms. Q factor shall be the following specified values.

Capacitance: 30pF and less

$$Q = 400 + 20 \cdot C \quad (C = \text{nominal capacitance})$$

Capacitance: Over 30pF

$$Q \text{ above } 1000$$

- Hi-K series

Dissipation factor shall be measured at a frequency of $1000\text{Hz} \pm 100\text{Hz}$ at 25°C with not more than 5Vrms. Dissipation factor shall be 1.5% max.

9. R.F. Current Rating

R.F. current ratings are to limit the I^2R losses and are in rms amperes. Temperature rise of these capacitors shall be 30°C max. above 25°C ambient.

10. Temperature Coefficient

Temperature coefficient shall be the following specified values:

NPO	0 ± 60	ppm/°C
N750	-750 ± 120	ppm/°C
N3300	-3300 ± 500	ppm/°C
X5U	-55°C to $+85^{\circ}\text{C}$	+22% to -56%

11. Humidity Test

Capacitors will withstand 95% relative humidity for 100 hours at $+40^{\circ}\text{C}$ and then dried in room for one hour and measured. Capacitor shall meet specification.

12. Life Test

Capacitors will withstand a 1000 hour test at $+85^{\circ}\text{C}$ at 140% of rated DC voltage.

13. Standard Test Condition

Temperature: 25°C Relative humidity: 65% The test temperature may range from $+5^{\circ}\text{C}$ to $+35^{\circ}\text{C}$ and test relative humidity from 45% to 85%.

14. Torque Limit

20 in.-lbs.

STANDARD VALUES

DCC 500 Series	Nom Cap. (pF)	Cap. Tol.	Temp. Coeff. (ppm/°C)	Rated Volt. (KV DC)	Test Volt. (KV DC)	R.F. Max. Amps.			R.F. Load for 30°C Temp. Rise Above 25°C			Fig.
						1MHz (A)	10MHz (A)	30MHz (A)	1MHz (KVA)	10MHz (KVA)	30MHz (KVA)	
DCC505NPO030D	3	$\pm 0.5\text{pF}$	NPO	5.0	7.5	0.07	0.7	1.4	0.23	2.3	3.2	1
DCC505NPO050D	5	$\pm 0.5\text{pF}$	NPO	5.0	7.5	0.11	1.1	1.6	0.38	3.8	2.8	1
DCC505N750100K	10	$\pm 10\%$	N750	5.0	7.5	0.22	1.7	2.3	0.78	4.2	2.9	1
DCC504NPO100K	10	$\pm 10\%$	NPO	5.0	7.5	0.22	1.8	2.1	0.78	5.4	2.3	1
DCC504N750200K	20	$\pm 10\%$	N750	5.0	7.5	0.44	3.1	3.4	1.55	7.5	3.0	1
DCC503NPO100K	10	$\pm 10\%$	NPO	5.0	7.5	0.22	1.8	2.4	0.78	5.4	3.0	1
DCC503NPO200K	20	$\pm 10\%$	NPO	5.0	7.5	0.44	2.7	2.8	1.5	5.6	2.0	1
DCC503N750300K	30	$\pm 10\%$	N750	5.0	7.5	0.66	3.6	3.2	2.3	6.7	1.8	1
DCC503N750400K	40	$\pm 10\%$	N750	5.0	7.5	0.89	4.4	3.5	3.1	7.7	1.7	1
DCC515NPO030D	3	$\pm 0.5\text{pF}$	NPO	5.0	7.5	0.77	0.7	1.4	0.23	2.3	3.2	2
DCC515NPO050D	5	$\pm 0.5\text{pF}$	NPO	5.0	7.5	0.11	1.1	1.6	0.38	3.8	2.8	2
DCC515N750100K	10	$\pm 10\%$	N750	5.0	7.5	0.22	1.7	2.3	0.78	4.2	2.9	2
DCC514NPO100K	10	$\pm 10\%$	NPO	5.0	7.5	0.22	1.8	2.1	0.78	5.4	2.3	2
DCC514N750200K	20	$\pm 10\%$	N750	5.0	7.5	0.44	3.1	3.4	1.55	7.5	3.0	2
DCC513NPO100K	10	$\pm 10\%$	NPO	5.0	7.5	0.22	1.8	2.4	0.78	5.4	3.0	2
DCC513NPO200K	20	$\pm 10\%$	NPO	5.0	7.5	0.44	2.7	2.8	1.5	5.6	2.0	2
DCC513N750300K	30	$\pm 10\%$	N750	5.0	7.5	0.66	3.6	3.2	2.3	6.7	1.8	2
DCC513N750400K	40	$\pm 19\%$	N750	5.0	7.5	0.89	4.4	3.5	3.1	7.7	1.7	2
DCC510NPO100K	10	$\pm 10\%$	NPO	7.5	11.25	0.47	1.9	2.2	3.5	5.6	2.5	3
DCC510NPO150K	15	$\pm 10\%$	NPO	7.5	11.25	0.61	2.3	3.4	4.0	5.8	3.9	3
DCC510NPO250K	25	$\pm 10\%$	NPO	7.5	11.25	0.89	3.1	5.6	5.0	6.1	6.6	3
DCC510NPO400K	40	$\pm 10\%$	NPO	7.5	11.25	1.38	3.8	6.8	5.6	5.8	6.3	3
DCC510NPO500K	50	$\pm 10\%$	NPO	7.5	11.25	1.7	4.2	7.6	8.9	5.6	6.0	3
DCC510N750500K	50	$\pm 10\%$	N750	7.5	11.25	1.7	5.0	8.5	8.9	7.9	7.7	3
DCC510N750750K	75	$\pm 10\%$	N750	7.5	11.25	2.5	6.2	9.0	13.2	8.1	5.6	3
DCC510N750101K	100	$\pm 10\%$	N750	7.5	11.25	3.4	7.3	9.2	19.0	8.7	4.6	3
DCC518X5U501M	500	$\pm 20\%$	X5U	5.0	7.5	1.1	2.5	3.0	0.4	0.2	0.1	3
DCC518X5U102M	1000	$\pm 20\%$	X5U	5.0	7.5	1.4	3.1	3.7	0.3	0.15	0.08	3
DCC507NPO250K	25	$\pm 10\%$	NPO	15.0	22.5	1.7	6.2	6.7	18.5	22.0	8.6	4
DCC507NPO500K	50	$\pm 10\%$	NPO	15.0	22.5	3.3	7.4	8.1	35.0	18.0	7.1	4
DCC507N750500K	50	$\pm 10\%$	N750	15.0	22.5	3.3	8.8	9.0	35.0	25.0	9.1	4
DCC507N750101K	100	$\pm 10\%$	N750	15.0	22.5	4.6	12.0	15.0	35.0	22.0	11.1	4
DCC507N750201K	200	$\pm 10\%$	N750	7.5	11.25	5.1	8.5	15.0	23.0	6.2	6.0	4
DCC517NPO250K	25	$\pm 10\%$	NPO	15.0	22.5	1.7	6.2	6.7	18.5	22.0	8.6	5
DCC517NPO500K	50	$\pm 10\%$	NPO	15.0	22.5	3.3	7.4	8.1	35.0	18.0	7.1	5
DCC517N750500K	50	$\pm 10\%$	N750	15.0	22.5	3.3	8.8	9.0	35.0	25.0	9.1	5
DCC517N750101K	100	$\pm 10\%$	N750	15.0	22.5	4.6	12.0	15.0	35.0	22.0	11.1	5
DCC517N750201K	200	$\pm 10\%$	N750	7.5	11.25	5.1	8.5	15.0	23.0	6.2	6.0	5
DCC509NPO500K	50	$\pm 10\%$	NPO	20.0	30.0	3.1	10.4	16.2	31.5	36.0	28.8	6
DCC509NPO101K	100	$\pm 10\%$	NPO	20.0	30.0	3.8	12.9	19.4	23.5	27.4	20.6	6
DCC509N750251K	250	$\pm 10\%$	N750	20.0	30.0	9.2	13.0	35.0	40.0	11.0	25.0	6
DCC509N3300501K	500	$\pm 10\%$	N3300	15.0	22.5	6.7	14.0	23.0	14.0	5.9	5.4	6

POWER CERAMIC CAPACITORS

DCU & DAU Series



FEATURES

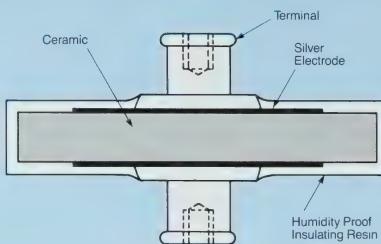
- Small size and high capacitance
- Linear and reversible temperature characteristic
- Very high "Q" and high insulation resistance from low to high frequencies
- No performance deterioration after extended use—excellent humidity and thermal resistance
- Low series inductance
- High power and current capacity in small packages due to low heating from dielectric losses when high voltage at high frequency is applied

APPLICATIONS

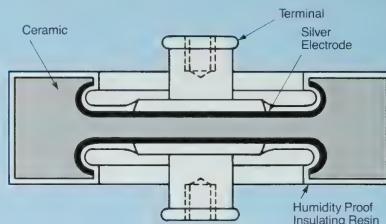
- Oscillators, matching, coupling or bypass circuits in broadcasting or radio communication equipments, etc.
- Oscillators, coupling circuits, or bypass capacitors in high frequency heating equipments or ultrasonic instruments.
- Coupling capacitor for transmission lines and carrier frequency equipment.

CONSTRUCTION

DAU Type



DCU Type



PART NUMBERING

TYPE DAU DCU	DCU200 N750 501 K	TEMPERATURE CHARACTERISTICS	CAPACITANCE	CAPACITANCE TOLERANCE
		Code Temp. Coeff.	Code Cap. Value	Code Cap. Tol.
		N750 $-750 \pm 120 \text{ ppm}/^\circ\text{C}$	500 50pF	K $\pm 10\%$
		NPO $0 \pm 60 \text{ ppm}/^\circ\text{C}$	501 500pF	
		P100 $+100 \pm 60 \text{ ppm}/^\circ\text{C}$	102 1000pF	
			202 2000pF	
			252 2500pF	

DIMENSIONS: inches

DAU			DCU					
Type	Type	Type	Type	Type	Type	Type	Type	Type
Dim. (in.)	DAU40	DAU60	DAU80	DCU40	DCU60	DCU80	DCU110	DCU140
d	0.39	0.47	0.71	0.39	0.47	0.71	0.75	0.94
C THD	10-32 UNF-2B	1/4-20 UNC-2B	1/4-20 UNC-2B	10-32 UNF-2B	1/4-20 UNC-2B	1/4-20 UNC-2B	3/8-16 UNC-2B	3/8-16 UNC-2B
							3/8-16 UNC-2B	1/2-13 UNC-2B

STANDARD VALUES

N750

DAU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power*			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DAU110N750401K	400	1.5	7	2	8.5	10	6.5	4.5	26	4.33	0.16	1.14
DAU110N750501K	500	1.5	7	2	8.5	10	6.5	4.5	26	4.33	0.16	1.14
DAU110N750601K	600	1.5	7	2	8.5	10	6.5	4.5	26	4.33	0.16	1.14
DAU110N750701K	700	1.5	7	2	8.5	10	6.5	4.5	26	4.33	0.16	1.14
DAU110N750801K	800	1.5	6	2	7	10	6.5	4.5	26	4.33	0.10	1.08
DAU110N750102K	1000	1.5	6	2	7	10	6.5	4.5	26	4.33	0.11	1.09
DAU110N750152K	1500	1.5	4	2	5	10	6.5	4.5	26	4.33	0.11	1.09
DAU110N750202K	2000	1.5	4	2	5	10	6.5	4.5	26	4.33	0.11	1.09
DAU80N750401K	400	1.5	5	2	6.5	7	4.5	3	18	3.15	0.10	1.08
DAU80N750501K	500	1.5	5	2	6.5	7	4.5	3	18	3.15	0.10	1.08
DAU80N750601K	600	1.5	5	2	6.5	7	4.5	3	18	3.15	0.10	1.08
DAU80N750701K	700	1.5	4	2	5	7	4.5	3	18	3.15	0.09	1.07
DAU80N750801K	800	1.5	4	2	5	7	4.5	3	18	3.15	0.09	1.07
DAU80N750102K	1000	1.5	4	2	5	7	4.5	3	18	3.15	0.09	1.07
DAU80N750152K	1500	1.5	4	2	5	7	4.5	3	18	3.15	0.09	1.07
DAU60N750201K	200	1.5	4	2	5	4.5	3	2	14	2.36	0.10	0.93
DAU60N750251K	250	1.5	4	2	5	4.5	3	2	14	2.36	0.10	0.93
DAU60N750301K	300	1.5	4	2	5	4.5	3	2	14	2.36	0.10	0.93
DAU60N750401K	400	1.5	4	2	5	4.5	3	2	14	2.36	0.07	0.90
DAU60N750601K	600	1.5	4	2	5	4.5	3	2	14	2.36	0.07	0.90
DAU60N750701K	700	1.5	4	2	5	4.5	3	2	14	2.36	0.07	0.90
DAU60N750801K	800	1.5	4	2	5	4.5	3	2	14	2.36	0.07	0.90
DAU60N750102K	1000	1.5	4	2	5	4.5	3	2	14	2.36	0.07	0.90
DAU40N750101K	100	1.5	4	2	5	3	2	1.5	8.5	1.57	0.11	0.94
DAU40N750151K	150	1.5	4	2	5	3	2	1.5	8.5	1.57	0.11	0.94
DAU40N750201K	200	1.5	4	2	5	3	2	1.5	8.5	1.57	0.06	0.89
DAU40N750251K	250	1.5	4	2	5	3	2	1.5	8.5	1.57	0.06	0.89
DAU40N750301K	300	1.5	3	2	3.5	2.2	1.5	1.0	8.5	1.57	0.06	0.89
DAU40N750401K	400	1.5	3	2	3.5	2.2	1.5	1.0	8.5	1.57	0.06	0.89
DAU50N750501K	500	1.5	3	2	3.5	2.2	1.5	1.0	8.5	1.57	0.06	0.89
DAU30N750500K	50	1.5	3	2	3.5	1.5	1.0	0.7	7	1.18	0.12	0.95
DAU30N750101K	100	1.5	3	2	3.5	1.5	1.0	0.7	7	1.18	0.06	0.89
DAU30N750151K	150	1.5	3	2	3.5	1.5	1.0	0.7	7	1.18	0.07	0.90
DAU30N750201K	200	1.5	2	2	2.5	1.5	1.0	0.7	7	1.18	0.05	0.88
DAU30N750251K	250	1.5	2	2	2.5	1.5	1.0	0.7	7	1.18	0.05	0.88
DAU30N750301K	300	1.5	2	2	2.5	1.5	1.0	0.7	7	1.18	0.04	0.87

*See "Caution," page 16.

POWER CERAMIC CAPACITORS

DCU & DAU Series

STANDARD VALUES 25V, N4700

DAU/DCU Series

Part No.	Nom. Cap. (μF)	Rated Volt.		Test Volt.		Max. Amp. (A)	Dimensions: inches		
		DC (KV)	DC (KV)	DC (KV)	DC (KV)		D ±10%	T ±0.08	H ±0.08
DAU30Z5V103P	0.01	3		3.5		—	1.18	0.04	0.87
DCU80N4700103K	0.01	5		7.5		—	3.15	0.59	1.81
DCU110N4700103K	0.01	10		15		—	4.33	0.75	1.93

P100

DAU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power *			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DAU110P100800K	80	3	9	4	11	21	14	9	26	4.33	0.12	1.11
DAU110P100101K	100	3	9	4	11	21	14	9	26	4.33	0.12	1.11
DAU80P100700K	70	3	6.5	4	8	11	7.5	5	18	3.15	0.16	1.14
DAU80P100800K	80	3	6.5	4	8	11	7.5	5	18	3.15	0.16	1.14
DAU80P100101K	100	3	6.5	4	8	11	7.5	5	18	3.15	0.16	1.14
DAU60P100200K	20	3	6	4	7	6	4	2.5	14	2.36	0.08	0.91
DAU60P100250K	25	3	6	4	7	6	4	2.5	14	2.36	0.08	0.91
DAU60P100300K	30	3	6	4	7	6	4	2.5	14	2.36	0.08	0.91
DAU60P100400K	40	3	6	4	7	6	4	2.5	14	2.36	0.08	0.91
DAU60P100500K	50	3	6	4	7	6	4	2.5	14	2.36	0.08	0.91
DAU40P100100K	10	3	3	4	4	3	2	1.4	8.5	1.57	0.06	0.89
DAU40P100150K	15	3	3	4	4	3	2	1.4	8.5	1.57	0.06	0.89
DAU40P100200K	20	3	3	4	4	3	2	1.4	8.5	1.57	0.06	0.89
DAU40P100250K	25	3	3	4	4	3	2	1.4	8.5	1.57	0.06	0.89

NPO

DAU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power *			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DAU110NPO101K	100	3	14	4	17	30	20	14	26	4.33	0.16	1.14
DAU110NPO151K	150	3	14	4	17	30	20	14	26	4.33	0.16	1.14
DAU110NPO201K	200	3	14	4	17	30	20	14	26	4.33	0.16	1.14
DAU110NPO251K	250	3	14	4	17	30	20	14	26	4.33	0.16	1.14
DAU110NPO301K	300	3	14	4	17	30	20	14	26	4.33	0.16	1.14
DAU80NPO101K	100	3	13	4	16	15	10	6.5	18	3.15	0.12	1.11
DAU80NPO151K	150	3	13	4	16	15	10	6.5	18	3.15	0.12	1.11
DAU80NPO201K	200	3	13	4	16	15	10	6.5	18	3.15	0.12	1.11
DAU60NPO500K	50	3	10	4	12	7.5	5	3.5	14	2.36	0.10	0.93
DAU60NPO700K	70	3	10	4	12	7.5	5	3.5	14	2.36	0.10	0.93
DAU60NPO101K	100	3	10	4	12	7.5	5	3.5	14	2.36	0.10	0.93
DAU40NPO200K	20	3	10	4	12	3.8	2.5	1.7	8.5	1.57	0.10	0.93
DAU40NPO300K	30	3	10	4	12	3.8	2.5	1.7	8.5	1.57	0.10	0.93
DAU40NPO500K	50	3	10	4	12	3.8	2.5	1.7	8.5	1.57	0.10	0.93

CAUTION

For DCU80 to DCU160 styles, there are two different versions:

DCU140 : tapped terminal,

DCU140-3 : tripod terminals with tapped hole. (Consult factory.)

Tapped terminals are suited in cases where banks of capacitors (series-parallel connection) are required.

When operating at frequency above 3MHz, it is advisable to use DCU140-3 style because of the improved current distribution of tripod terminals.

*Power

Rated power capacity means continuously useable apparent power.

	Ambient Temp.	Allowable Temp. Rise
WL ₁	50°C	50°C
WL ₂	70°C	30°C
WL ₃	70°C	10°C

STANDARD VALUES

P100

DCU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power*			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DCU160P100500K	50	27	23	40	27	135	90	60	40	6.30	1.35	2.09
DCU160P100101K	100	23	20	34	25	135	90	60	40	6.30	1.15	1.93
DCU160P100151K	150	23	20	34	24	90	60	40	40	6.30	1.11	1.90
DCU140P100500K	50	23	23	34	27	90	60	40	35	5.51	1.25	2.04
DCU140P100101K	100	23	20	34	25	90	60	40	35	5.51	1.13	1.91
DCU140P100151K	150	19	20	28	24	60	40	25	35	5.51	1.04	1.83
DCU140P100201K	200	16	16	24	19	60	40	25	35	5.51	1.05	1.84
DCU110P100400K	40	19	18	28	22	67.5	45	30	27	4.33	0.87	1.89
DCU110P100500K	50	19	18	28	22	67.5	45	30	27	4.33	0.83	1.85
DCU110P100600K	60	16	16	24	19	67.5	45	30	27	4.33	0.81	1.83
DCU110P100700K	70	16	16	24	19	67.5	45	30	27	4.33	0.87	1.89
DCU110P100800K	80	16	16	24	19	45	30	20	27	4.33	0.82	1.84
DCU110P100101K	100	16	16	24	19	45	30	20	27	4.33	0.85	1.87
DCU110P100151K	150	12	12	18	14.5	45	30	20	27	4.33	0.85	1.87
DCU80P100200K	20	16	17	24	20	45	30	20	20	3.15	1.08	1.43
DCU80P100250K	25	16	17	24	20	45	30	20	20	3.15	0.98	1.33
DCU80P100300K	30	16	17	24	20	45	30	20	20	3.15	0.92	1.27
DCU80P100400K	40	16	15	24	18.5	30	20	14	20	3.15	0.83	1.18
DCU80P100500K	50	16	15	24	18.5	30	20	14	20	3.15	0.90	1.33
DCU80P100600K	60	12	12	18	14.5	22.5	15	10	20	3.15	0.81	1.24
DCU80P100700K	70	12	12	18	14.5	22.5	15	10	20	3.15	0.79	1.22
DCU80P100800K	80	12	12	18	14.5	22.5	15	10	20	3.15	0.65	1.23
DCU80P100101K	100	12	12	18	14.5	22.5	15	10	20	3.15	0.67	1.25
DCU60P100100K	10	14	14	20	17	22.5	15	10	15	2.36	0.76	1.20
DCU60P100150K	15	14	14	20	17	22.5	15	10	15	2.36	0.76	1.20
DCU60P100200K	20	14	14	20	17	22.5	15	10	15	2.36	0.66	1.10
DCU60P100250K	25	12	12	18	14.5	15	10	6.5	15	2.36	0.59	1.03
DCU60P100300K	30	12	12	18	14.5	15	10	6.5	15	2.36	0.65	1.13
DCU60P100400K	40	12	12	18	14.5	15	10	6.5	15	2.36	0.64	1.12
DCU60P100500K	50	9.5	9	14	11	11	7.5	5	15	2.36	0.56	1.04
DCU60P100600K	60	9.5	9	14	11	11	7.5	5	15	2.36	0.52	1.00
DCU60P100700K	70	7	6.5	10	8	11	7.5	5	15	2.36	0.51	0.98
DCU60P100800K	80	7	6.5	10	8	11	7.5	5	15	2.36	0.52	1.00
DCU40P100100K	10	9.5	9	14	11	7.5	5	3.5	10	1.57	0.50	1.05
DCU40P100150K	15	9.5	9	14	11	7.5	5	3.5	10	1.57	0.42	0.97
DCU40P100200K	20	9.5	9	14	11	7.5	5	3.5	10	1.57	0.64	1.19
DCU40P100250K	25	9.5	9	14	11	7.5	5	3.5	10	1.57	0.51	1.10
DCU40P100300K	30	9.5	9	14	11	7.5	5	3.5	10	1.57	0.48	1.04
DCU30P100100K	10	4	6	6	7	4.5	3	2	8	1.18	0.39	0.94
DCU30P100150K	15	4	6	6	7	4.5	3	2	8	1.18	0.51	0.94

NPO

DCU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power*			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DCU160NPO301K	300	27	35	40	42	225	150	100	40	6.30	1.14	1.91
DCU160NPO351K	350	27	35	40	42	225	150	100	40	6.30	1.09	1.88
DCU160NPO401K	400	19	30	28	36	225	150	100	40	6.30	0.93	1.84
DCU160NPO501K	500	16	25	24	30	225	150	100	40	6.30	0.87	1.77
DCU140NPO101K	100	23	30	34	37	135	90	60	35	5.51	1.02	2.04
DCU140NPO151K	150	23	30	34	37	135	90	60	35	5.51	0.90	1.98
DCU140NPO201K	200	19	25	28	32	135	90	60	35	5.51	0.90	1.91
DCU140NPO251K	250	19	25	28	32	135	90	60	35	5.51	1.07	1.88
DCU110NPO101K	100	16	21	24	26	67.5	45	30	27	4.33	0.87	1.81
DCU110NPO151K	150	16	21	24	26	67.5	45	30	27	4.33	0.87	1.81
DCU110NPO201K	200	16	21	24	26	67.5	45	30	27	4.33	0.87	1.81
DCU80NPO101K	100	12	15	18	19	30	20	14	20	3.15	0.67	1.23
DCU80NPO151K	150	12	15	18	19	30	20	14	20	3.15	0.55	1.14
DCU60NPO500K	50	7.0	10	10	14	15	10	6.5	15	2.36	0.56	1.04
DCU60NPO101K	100	7.0	10	10	14	15	10	6.5	15	2.36	0.53	0.97

POWER CERAMIC CAPACITORS
DCU & DAU Series

STANDARD VALUES
N750

DCU Series

Part No.	Nom. Cap. (pF)	Rated Volt.		Test Volt.		Rated Power*			Max. Amp. (A)	Dimensions: inches		
		R.F. Peak Value (KV)	DC (KV)	R.F. Peak Value (KV)	DC (KV)	WL1 (KVA)	WL2 (KVA)	WL3 (KVA)		D ±10%	T ±0.08	H ±0.08
DCU200N750501K	500	23	17	34	20	300	200	130	60	7.78	1.30	2.88
DCU200N750102K	1000	23	17	34	20	300	200	130	60	7.78	1.30	2.88
DCU200N750152K	1500	23	17	34	20	180	120	80	60	7.78	1.30	2.88
DCU200N750202K	2000	19	14	28	17	180	120	80	60	7.78	1.07	2.71
DCU200N750252K	2500	16	14	24	17	180	120	80	60	7.78	1.00	2.64
DCU160N750101K	1000	23	17	34	20	110	75	50	40	6.30	1.36	2.14
DCU160N750152K	1500	19	14	28	17	110	75	50	40	6.30	1.13	1.91
DCU160N750202K	2000	9.5	8	14	10	110	75	50	40	6.30	1.05	1.83
DCU160N750252K	2500	9.5	8	14	10	110	75	50	40	6.30	0.98	1.77
DCU140N750501K	500	23	17	34	20	90	60	40	35	5.51	1.00	2.09
DCU140N750601K	600	23	17	34	20	90	60	40	35	5.51	1.00	2.09
DCU140N750701K	700	23	17	34	20	90	60	40	35	5.51	1.00	2.09
DCU140N750801K	800	23	17	34	20	90	60	40	35	5.51	1.00	2.09
DCU140N750102K	1000	19	14	28	17	90	60	40	35	5.51	0.91	2.01
DCU140N750152K	1500	9.5	8	14	10	90	60	40	35	5.51	0.75	1.85
DCU140N750202K	2000	7	5	10	6	67.5	45	30	35	5.51	0.67	1.77
DCU140N750252K	2500	7	5	10	6	67.5	45	30	35	5.51	0.63	1.73
DCU110N750201K	200	19	14	28	17	45	30	20	27	4.33	1.02	2.04
DCU110N750251K	250	19	14	28	17	45	30	20	27	4.33	1.02	2.04
DCU110N750301K	300	23	17	34	20	90	60	40	27	4.33	1.07	2.09
DCU110N750401K	400	23	17	34	20	90	60	40	27	4.33	1.07	2.09
DCU110N750501K	500	12	9	18	11	30	20	14	27	4.33	0.68	1.86
DCU110N750601K	600	12	9	18	11	30	20	14	27	4.33	0.67	1.85
DCU110N750701K	700	9.5	7	14	8.5	30	20	14	27	4.33	0.63	1.81
DCU110N750801K	800	9.5	7	14	8.5	30	20	14	27	4.33	0.63	1.81
DCU110N750102K	1000	7	6	10	7	30	20	14	27	4.33	0.53	1.75
DCU110N750152K	1500	7	5	10	6	22	14	10	27	4.33	0.55	1.73
DCU110N750202K	2200	4	4	6	5	22	14	10	27	4.33	0.51	1.69
DCU110N750252K	2500	4	4	6	5	22	14	10	27	4.33	0.50	1.68
DCU80N750201K	200	12	9	18	11	30	20	14	20	3.15	0.67	1.26
DCU80N750251K	250	12	9	18	11	30	20	14	20	3.15	0.64	1.23
DCU80N750301K	300	12	9	18	11	30	20	14	20	3.15	0.71	1.30
DCU80N750401K	400	9.5	8	14	10	15	10	6.5	20	3.15	0.61	1.20
DCU80N750501K	500	9.5	8	14	10	15	10	6.5	20	3.15	0.62	1.20
DCU80N750601K	600	7.0	5	10	6	15	10	6.5	20	3.15	0.53	1.12
DCU80N750701K	700	7.0	5	10	6	15	10	6.5	20	3.15	0.53	1.12
DCU80N750801K	800	4.0	4	6	5	15	10	6.5	20	3.15	0.48	1.11
DCU80N750102K	1000	4.0	4	6	5	15	10	6.5	20	3.15	0.46	1.09
DCU60N750101K	100	9.5	8	14	10	15	10	6.5	15	2.36	0.64	1.08
DCU60N750151K	150	9.5	8	14	10	15	10	6.5	15	2.36	0.64	1.08
DCU60N750201K	200	9.5	8	14	10	15	10	6.5	15	2.36	0.64	1.08
DCU60N750251K	250	9.5	8	14	10	15	10	6.5	15	2.36	0.64	1.08
DCU60N750301K	300	9.5	7	14	8.5	7.5	5	3.5	15	2.36	0.60	1.03
DCU60N750401K	400	9.5	7	14	8.5	7.5	5	3.5	15	2.36	0.59	1.01
DCU60N750501K	500	4	3	6	4	7.5	5	3.5	15	2.36	0.46	0.94
DCU60N750601K	600	4	3	6	4	7.5	5	3.5	15	2.36	0.47	0.94
DCU60N750701K	700	4	3	6	4	7.5	5	3.5	15	2.36	0.45	0.93
DCU40N750500K	50	9.5	7	14	8.5	6	4	2.5	10	1.57	0.60	1.15
DCU40N750101K	100	9.5	7	14	8.5	6	4	2.5	10	1.57	0.60	1.15
DCU40N750151K	150	9.5	7	14	8.5	6	4	2.5	10	1.57	0.50	1.05
DCU40N750201K	200	4	3	6	4	4.5	3	2	10	1.57	0.43	0.99
DCU40N750251K	250	4	3	6	4	4.5	3	2	10	1.57	0.40	0.95
DCU40N750301K	300	4	3	6	4	4.5	3	2	10	1.57	0.37	0.93
DCU30N750500K	50	4	3	6	4	3	2	1.4	8	1.18	0.45	1.01
DCU30N750101K	100	4	3	6	4	3	2	1.4	8	1.18	0.45	1.01
DCU30N750151K	150	4	3	6	4	3	2	1.4	8	1.18	0.39	0.94

*See Caution page 16

SPECIFICATIONS

1. **Operating Temperature Range:**
-10°C to +85°C

2. **Storage Temperature Range:**
-40°C to +100°C

3. **Temperature Coefficient (Capacitance Change):**
P100: +100, ± 60 ppm/°C
NPO: ±60 ppm/°C
N750: -750, ± 120 ppm/°C
N4700: -4700, ± 1000 ppm/°C
Z5V: +22, -82%

4. **Capacitance:**
Capacitance shall be within the specified limits when measuring to 1MHz±10KHz and 25°C with 8VAC r.m.s. Capacitance shall be within the specified capacitance tolerance.

5. **Capacitance Tolerance:**
Tolerance: ±10% (Code: K)

6. **Rated Voltage:**
Rated voltage as specified.

7. **Withstanding Voltage:**

(1) **DC Withstanding Voltage**

There shall be no damage when the test voltage is applied between terminals for 3 minutes after 2 hour (min.) exposure at a constant temperature of 100°C.

(2) **High Frequency Withstanding Voltage**

There shall be no damage when the test voltage (H.F. peak) of 100KHz to 1000KHz is applied between terminals for 1 minute.

8. **Insulation Resistance:**

Insulation resistance shall be 10,000MΩ min. after voltage application of 500V DC between terminals.

9. **Q (Measured at 1MHz):**

N750, NPO, P100: 2000 min.

*NPO, P100 Char.: Cap. \leq 30pF. See figure below.

10. **Power:**

Rated power capacity means continuously useable power. This value is specified by 3 types as follows:

	Ambient Temp.	Allowable Temp. Rise
WL ₁	50°C	50°C
WL ₂	70°C	30°C
WL ₃	70°C	10°C

11. **Humidity Test:**

After 100 hour exposure to 95% R.H. and 40°C±2°C and 1 hour exposure to a room temperature, the following values shall be guaranteed.

Char.	Q	I.R.	Withstanding Volt.
N750	1000 min.	5000MΩ min.	No damage
NPO	1000 min.	5000MΩ min.	No damage
P100	1000 min.	5000MΩ min.	No damage

*Q: NPO, P100 Char.: Cap. \leq 30pF

12. **Marking:**

1. Type
2. Normal capacitance and tolerance
3. Rated voltage (H.F.)
4. Rated voltage (DC)
5. Rated power capacity (The first/second kind)
6. Production date code (Year, Month and Day)
7. Prod. lot no.
8. Manufacturer identification

13. **Insulation Coating:**

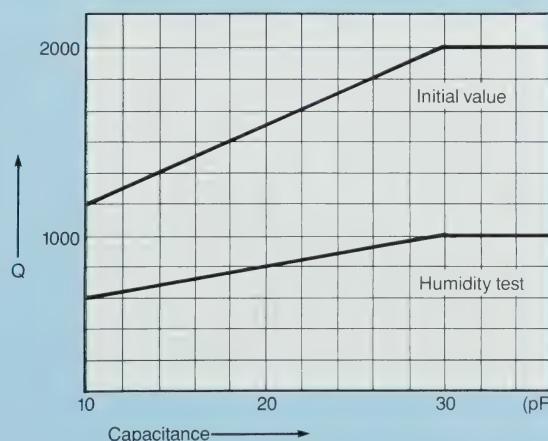
Surface of the capacitor (except terminals) is coated with insulating resin.

14. **Standard Test Conditions:**

Temperature: 25°C, Relative humidity: 65%

The test temperature may range from +5°C to +35°C and test relative humidity from 45% to 85%.

15. **Maximum current rated at below 20MHz and 70°C.**



POWER CERAMIC CAPACITOR

DCT & DAT Series



These units are designed for such applications as high frequency heating equipment to which high frequency power or high DC or AC voltage is applied.

FEATURES

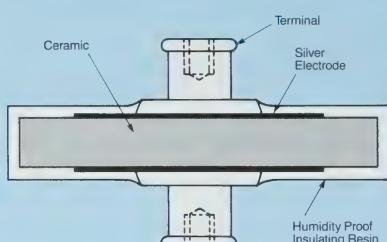
- Small size and high capacitance
- Linear and reversible temperature characteristics
- Very high "Q" and high insulation resistance from low to high frequencies
- No performance deterioration after extended life—excellent humidity and thermal resistance
- Low series inductance and operable to high frequencies
- Large power capability in small packages due to low dielectric loss when high voltage and high frequency is applied

APPLICATIONS

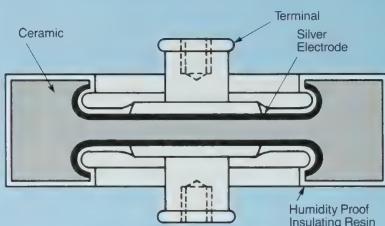
- Oscillator matching, coupling or bypass circuits in broadcast or radio communication equipments, etc.
- Oscillators, coupling circuit or bypass capacitors in industrial or medical high frequency appliances such as high frequency heating equipments or ultrasonic instruments.
- Coupling capacitors for transmission lines and carrier frequency equipment.

CONSTRUCTION

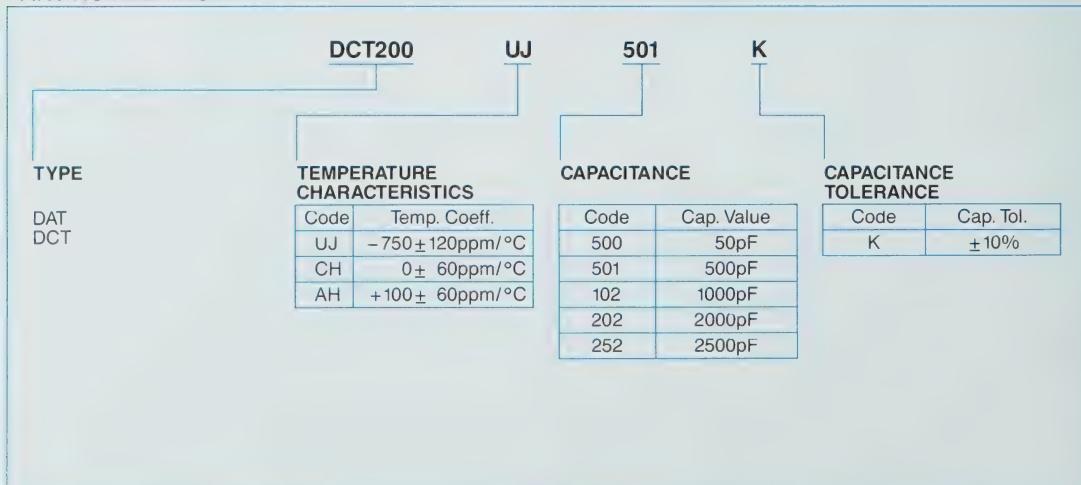
DAT Series



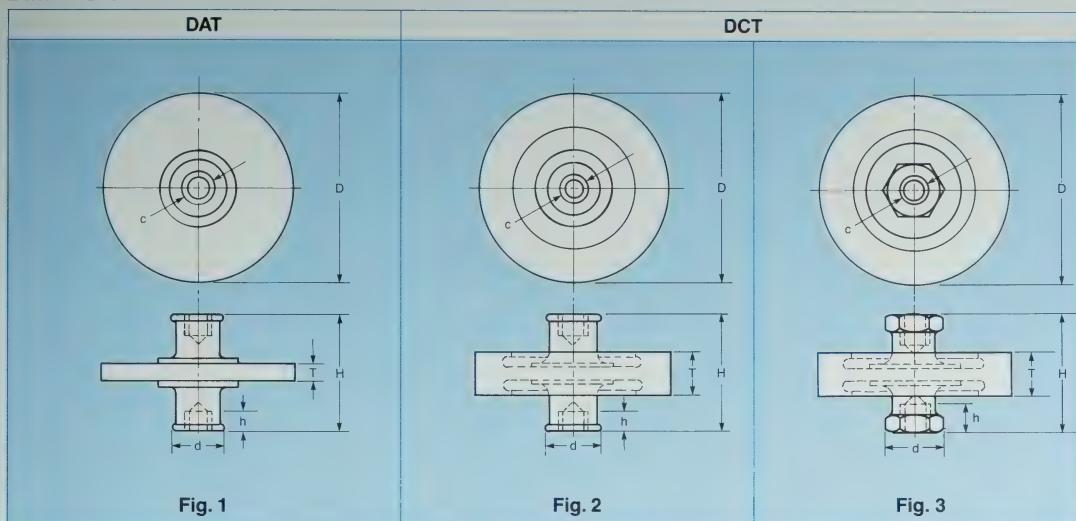
DCT Series



PART NUMBERING



DIMENSIONS: inches



DIM: inches	TYPE									
	DAT40	DAT60	DAT80	DCT40	DCT60	DCT80	DCT110	DCT140	DCT160	DCT200
C	.157	.236	.236	.157	.236	.236	.315	.315	.315	.394
d	.394	.472	.709	.394	.472	.709	.748	.945	.945	1.575
h	.315	.315	.315	.315	.315	.315	.591	.591	.591	.591

SPECIFICATIONS

Char.	Cap. Tolerance (at 25°C)	Q (at 1MHz)	I.R. (MΩ)	Temp. Rise (at 1MHz)		Cap. Temp. Coeff.	Operating Temp. Range
				50°C	70°C		
UJ	10%	5X10 ⁻⁴ max. (Q>2,000)	10,000 min.	50°C max.	30°C max.	(-750±120) X10 ⁻⁶	-10 to 100°C
CH	10%	5X10 ⁻⁴ max. * (Q>2,000)	10,000 min.	50°C max.	30°C max.	(0±60) X10 ⁻⁶	-10 to 100°C
AH	10%	5X10 ⁻⁴ max. * (Q>2,000)	10,000 min.	50°C max.	30°C max.	(+100±60) X10 ⁻⁶	-10 to 100°C

* CH, AH Char.: Cap \leq 30pF.

MARKING

1. Type
2. Normal capacitance and tolerance
3. Rated voltage (RF)
4. Rated voltage (DC) at 50°C and 70°C
5. Rated power capacity (The first/second kind)
6. Production date code (Year, Month and Day)
7. Prod. lot no.
8. Manufacturer identification

INSULATION COATING

Capacitor surface is coated with insulating resin except terminals. Temp. coefficient is shown by the following color marking.
UJ: Green, CH: Orange, AH: Blue.

POWER CERAMIC CAPACITOR
DCT & DAT Series
STANDARD VALUES

Part Number	Cap. (pF)	Rated Volt. (KV)			Rated Allowable Power (KVA)		Allowable Max. Current (A)	Dimensions: inches			Fig.	
		R.F. Peak Value	DC					D $\pm 10\%$	T $\pm .079$	H $\pm .079$		
			50°C	70°C	50°C	70°C		D $\pm 10\%$	T $\pm .079$	H $\pm .079$		
DCT200UJ501K	500	30	25	20	300	200	60	7.874	1.299	2.480	3	
DCT200UJ102K	1000	30	25	20	300	200		7.874	1.299	2.874		
DCT160UJ152K	1500	25	21	17	110	75	40	6.299	1.142	1.929	3	
DCT140UJ501K	500	30	25	20	90	60	35	5.512	.984	2.087		
DCT140UJ601K	600	30	25	20	90	60	35	5.512	.984	2.087	3	
DCT140UJ801K	800	30	25	20	90	60	35	5.512	.984	2.087		
DCT140UJ102K	1000	25	21	17	90	60	35	5.512	.866	1.969	3	
DCT140UJ152K	1500	15	13	10	90	60	35	5.512	.866	1.811		
DCT110UJ301K	300	30	25	20	90	60	27	4.331	1.063	2.047	2	
DCT110UJ401K	400	30	25	20	90	60	27	4.331	1.063	2.087		
DCT110UJ501K	500	16	13	11	30	20	27	4.331	.669	1.850	2	
DCT110UJ102K	1000	10	8	7	30	20	27	4.331	.551	1.772		
DCT110UJ152K	1500	9	7	6	22	14	27	4.331	.551	1.732	2	
DCT110UJ252K	2500	7	6	5	22	14	27	4.331	.512	1.693		
DCT80UJ301K	300	16	13	11	30	20	20	3.150	.709	1.299	2	
DCT80UJ501K	500	14	12	10	15	10	20	3.150	.630	1.220		
DCT80UJ601K	600	9	8	7	15	10	20	3.150	.551	1.142	2	
DCT80UJ801K	800	7	6	5	15	10	20	3.150	.472	1.102		
DCT80UJ102K	1000	7	6	5	15	10	20	3.150	.472	1.102		
DCT60UJ101K	100	14	12	10	15	10	15	2.362	.630	1.063	1	
DCT60UJ201K	200	14	12	10	15	10	15	2.362	.630	1.063		
DCT60UJ301K	300	12	10	8.5	7.5	5	15	2.362	.591	1.024	1	
DCT60UJ501K	500	6	5	4	7.5	5	15	2.362	.472	.945		
DCT40UJ500K	50	12	10	8	6	4	10	1.575	.591	1.142	1	
DCT40UJ201K	200	6	5	4	4.5	3	10	1.575	.433	.984		
DCT40UJ301K	300	6	5	4	4.5	3	10	1.575	.374	.945		
DAT80UJ102K	1000	2	6	5	7	4.5	18	3.150	.118 ¹	1.063	1	
DAT80UJ152K	1500	2	6	5	7	4.5	18	3.150	.118 ¹	1.063		
DAT60UJ501K	500	2	6	5	5	3	14	2.362	.118 ¹	.906	1	
DAT60UJ102K	1000	2	6	5	5	3	14	2.362	.118 ¹	.906		
DAT40UJ301K	300	2	3.5	3	2.2	1.5	8.5	1.575	.079 ¹	.945	1	
DAT40UJ501K	500	2	3.5	3	2.2	1.5	8.5	1.575	.079 ¹	.906		
DCT160CH301K	300	36	42	38	225	150	40	6.299	1.142	1.929	3	
DCT140CH101K	100	31.5	37	34	135	90	35	5.512	1.024	2.047		
DCT140CH201K	200	27	32	28	135	90	35	5.512	.945	1.929		
DCT110CH101K	100	22.5	26	24	67.5	45	27	4.331	.866	1.811	2	
DCT110CH201K	200	22.5	26	24	67.5	45	27	4.331	.866	1.811		
DCT80CH101K	100	16	19	17	30	20	20	3.150	.669	1.260	2	
DCT140AH201K	200	24	24	19	60	45	35	5.512	1.063	1.850	3	
DCT140AH101K	100	30	32	25	90	60	35	5.512	1.024	1.929		
DCT110AH101K	100	22	24	19	45	30	27	4.331	.866	1.811		

1 = $\pm .02$

CAUTION For DCT80 thru DCT160 styles, there are two different versions:
DCT140 : tapped terminal.
DCT140-3 : tripod terminals with tapped hole. (Contact factory.)

Tapped terminals are suitable in cases where banks of capacitors (series-parallel connection) are required. When operating at frequency above 3MHz, it is advisable to use DCT140-3 style because of the improved current distribution of tripod terminals.

If your application calls for a product not covered in the catalog or if additional information is needed concerning the capacitor/resistor you require, please fill out the following form and return to Murata Erie North America, Inc.

Name _____ Title _____
Company & Division _____
Company Address _____
City _____ State _____ ZIP _____ Country _____
Telephone _____ Extension _____ Date _____

ELECTRICAL SPECIFICATIONS (Include drawing if possible)

Cap./Res.: _____ Inductance: _____
Tol.: _____ Peak Current: _____
TC/TCR: _____ Voltage/Power Derating: _____
WV: _____ Rep Rate: _____
Operating Temp.: _____ Duty Cycle: _____
Ratio (Res. only): _____
Test Specifications: _____
Ratio To. (Res. Only): _____

PHYSICAL SPECIFICATIONS (Include drawing if available)

Leaded	Non-Leaded
Dimensions: _____	Dimension: _____
Seated Height: _____	Terminations: _____
Lead Style: _____	Threads: _____
Lead Dia.: _____	Coating: _____
Lead Spacing: _____	Marking: _____
Coating: _____	
Marking: _____	

MARKETING INFORMATION

Application: _____
Target Price: _____
Quantity _____ Prototype _____ Production _____
Delivery _____ Prototype _____ Production _____
Competition _____
Additional Comments: _____

FOLD TWO



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS

PERMIT NO. 476

SMYRNA, GA.

POSTAGE WILL BE PAID BY ADDRESSEE

MURATA ERIE NORTH AMERICA, INC.

2200 Lake Park Drive
Smyrna, Georgia 30080

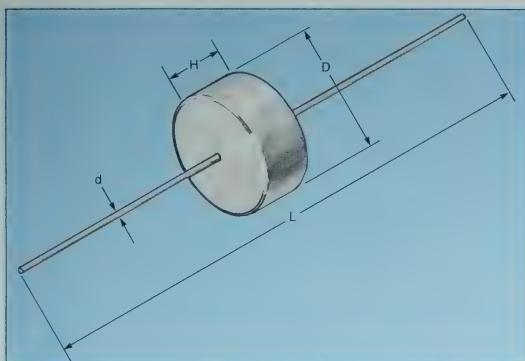
FOLD ONE

HIGH VOLTAGE CERAMIC CAPACITORS

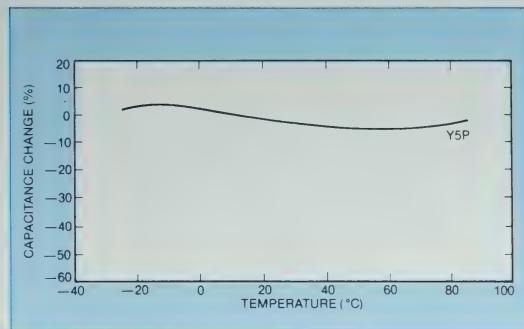
DHL-DHG SERIES E.I.A. CLASS II

muRata ER[®]

10 & 15 KVDC



CAPACITANCE CHANGE VS. TEMPERATURE



PART NUMBERING SYSTEM

TYPE DHL20	TEMP. CHAR. Y5P	CAPACITANCE 751	TOL. M	VOLTAGE 10KV
CAPACITOR TYPE AND SIZE	TEMPERATURE CHARACTERISTICS Temperature range Y = -30°C to +85°C MAX. CAP. CHANGE OVER TEMP. RANGE P = ± 10%	CAPACITANCE VALUE Expressed in picofarads and identified by a three-digit number. First two digits represent significant figures. Last digit specifies the number of zeros to follow.	CAPACITANCE TOLERANCE M = 20%	VOLTAGE Identified by a two-digit number in KVDC.

PART NUMBER	CAPACITANCE (pF)	WORKING VOLT. (KVDC)	TEST VOLT. (KVDC)	DIMENSIONS: in. (mm)			
				D	L	H	d
DHL20Y5P751M10KV	750	10	15	.79 (20)	3.15 (80)	.55 (14)	#18 (1)
DHL20Y5P102M10KV	1,000	10	15	.79 (20)	3.15 (80)	.55 (14)	#18 (1)
DHG20Y5P751M15KV	750	15	22.5	.79 (20)	3.15 (80)	.55 (14)	#18 (1)
DHG20Y5P102M15KV	1,000	15	22.5	.79 (20)	3.15 (80)	.55 (14)	#18 (1)

STANDARD CAPACITANCE TOLERANCE: -20%(M)

SPECIFICATIONS

1. Temperature Range:
Operating: -30°C to +85°C.
Storage: -40°C to +125°C.

2. Capacitance and Tolerance:

Characteristic	Temp. Range	Cap. Change
Y5P	-30°C to +85°C.	-10%

Capacitance shall be measured at a frequency of 1KHz ± 0.1KHz at 25°C with not more than 5 ± 0.5 Vrms.

3. Dissipation Factor: The maximum dissipation factor shall be 2.5%. Dissipation factor shall be measured at a frequency of 1KHz ± 0.1KHz at 25°C with not more than 5 ± 0.5 Vrms.

4. Dielectric Strength Test: These capacitors shall withstand the specified test voltage for 1 minute.

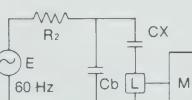
5. Insulation Resistance: The minimum insulation resistance shall be not less than $10,000M\Omega$ at 25°C. Measurements shall be made after a 1 minute charge at 500VDC voltage through a current limiting resistor of not greater than $10M\Omega$.

6. Humidity Resistance: After exposure for 100 hrs. in an atmosphere of 95% relative humidity and +45°C, capacitors shall have a maximum dissipation factor of 3%. 24 hrs. after removal from the test chamber, capacitors shall be measured in accordance with Section 3.

7. Life Test: These capacitors shall withstand test voltage (TV) for 500 hrs. at an ambient temperature of 85°C.

8. Corona Test (For Power Distribution Systems): Corona shall be measured in the following test circuit. Corona shall be 50 picocoulomb max. with 2KV (10KVDC) or 3KV (15KVDC) rms applied at a frequency of 60Hz.

9. Encapsulation: Ceramic is enclosed in a molded epoxy resin.



E: Power supply (corona free)
R₂: Circuit protective resistor
C_b: By-pass Capacitor
C_x: Specimen
L: Corona pulse pick-up coil
M: Corona detector. Tunable type.

TYPICAL MARKING

Manufacturer's Identification
Capacitance (in pF)
Tolerance (EIA Code)
Rated Voltage
Date Code of Mfg.

POWER CERAMIC CAPACITOR

DCF & DAF Series

FEED-THRU TYPE



FEATURES

- Small size, large power handling capability
- Linear and reversible temperature characteristics
- Excellent "Q" and I.R. performance over a wide frequency range
- Superior humidity and extended life performance

APPLICATIONS

- Antenna coupling
- Bypasses for medical and industrial applications
- Transmission line couplers

STANDARD VALUES

Part Number	Rated Volt. (KVp)	Nom. Cap. (pF)	Rated Power (KVA)	Rated Reactive Current (A) rms	Dimensions: inches	
					D	L
DAF20 N750 501M *1	3	500	3.6	5	.630	1.575
DAF20 N750 801M *1	3	800	3.6	5	.630	1.575
DAF20 N750 102M *1	3	1000	5.5	5	.630	2.362
DCF20 N750 801M *2	3	800	3.7	5	.630	1.575
DCF45 N750 801M *3	8	800	12	10	1.181	2.756
DCF45 N750 102M *3	8	1000	12	10	1.181	3.543
DCF65 N750 102M *4	10	1000	40	25	1.772	6.102
DCF80 N750 102M *5	20	1000	50	50	2.165	8.858

*1 Feed-thru current 6A

*2 Feed-thru current 10A

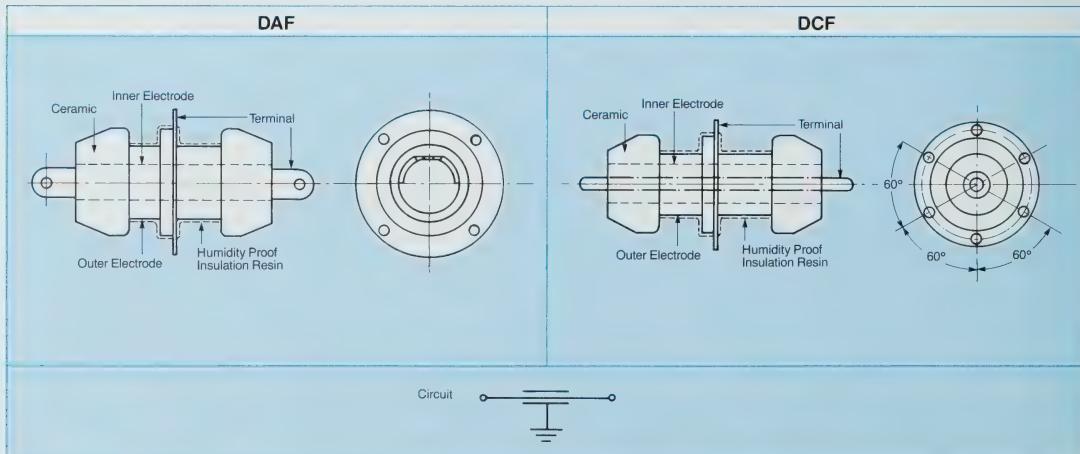
*3 Feed-thru current 20A

*4 Feed-thru current 50A

*5 Feed-thru current 70A

For low frequency current below 20 KHz, the rated reactive power may be increased 25% if the ambient temperature of 30°C and the upper temperature of 75°C are not exceeded.

CONSTRUCTION

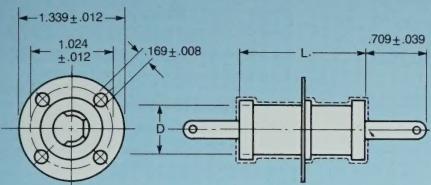


POWER CERAMIC CAPACITOR
DCF & DAF Series
FEED-THRU TYPE

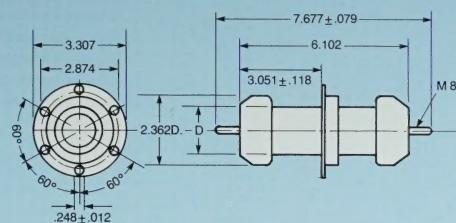
muRata **ERIE**

DIMENSIONS: inches

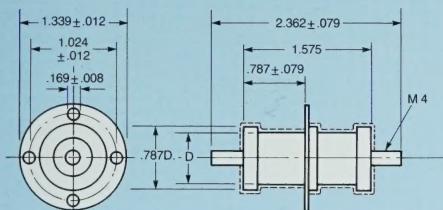
DAF20 N750 501M (801M-102M)



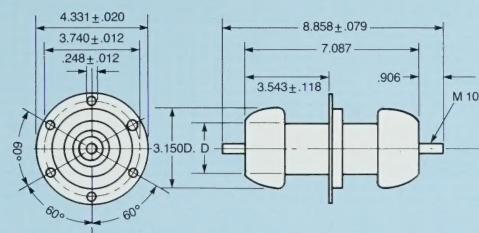
DCF65 N750 102M



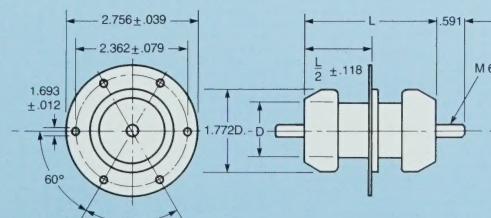
DCF20 N750 801M



DCF80 N750 102M



DCF45 N750 801M (102M)



POWER CERAMIC CAPACITOR

DE Series



These units for extremely high power applications VHF frequency range

FEATURES

- High volume metric efficiency and small size for their KVA rating
- Linear and reversible temperature characteristics
- High "Q" and I.R.
- Excellent humidity and thermal characteristics
- No performance degradation over extended life

APPLICATIONS

- Radio transmitters
- High power induction heaters
- High power matching, coupling and bypassing

WATER-COOLED CERAMIC R.F. POWER SPECIFICATIONS

Electrical and mechanical tests

Capacitance

Capacitance shall be within the specified limits when measuring to $100\text{KHz} \pm 10\text{KHz}$ and 25°C within AC 8 Vrms. Capacitance shall be the specified capacitance tolerance.

Insulation Resistance

Insulation resistance shall be $10,000\text{M}\Omega$ min. after voltage application of 500V DC between terminal.

Withstanding Voltage

There shall be no damage when the test voltage (peak value of double the rated voltage) of 60Hz is applied between terminals for 5 minutes.

Pressure Test

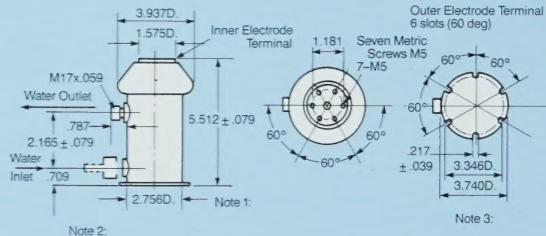
There shall be no damage when the water pressure of 84 psi (6kg/cm^2) applied between cooling system for 5 minutes at 25°C .

STANDARD VALUES

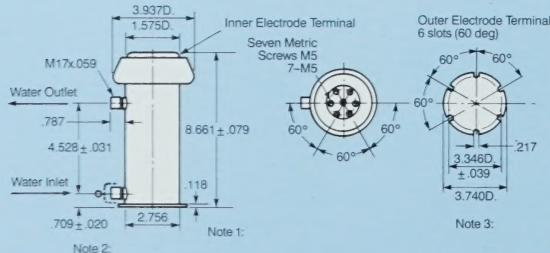
Part Number	Temp. Coefficient	Nom. Cap. (pF)	Cap. Tol. (%)	Rated Volt.		Rated Power (kVA)	Rated Current (Arms)	Min. Water Flow Rate (1/min)
				HF Peak (kVp)	DC (kV)			
DE100UJ252M-HF15K	$(-750 \pm 120) \times 10^{-6} \text{ }^\circ\text{C}$	2500	± 20	15	17	1000	100	1.0
DE100UJ502M-HF12K	$(-750 \pm 120) \times 10^{-6} \text{ }^\circ\text{C}$	5000	± 20	12	14	1250	150	1.0

DIMENSIONS: inches

DE100UJ252M-HF15K

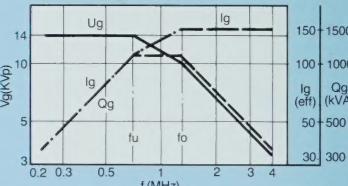


DE100UJ502M-HF12K

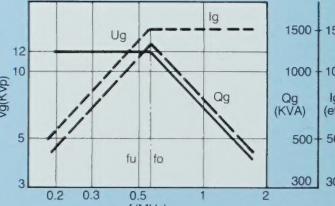


Limits—continuous values of voltage (U_g), current (I_g) and power (Q_g) as function of frequency.

DE100UJ252M-HF15K



DE100UJ502M-HF12K

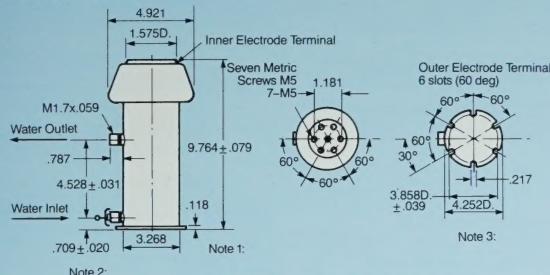


STANDARD VALUES

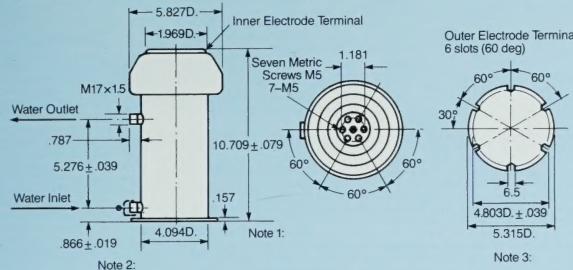
Part Number	Temp. Coefficient	Nom. Cap. (pF)	Cap. Tol. (%)	Rated Volt.		Rated Power (kVA)	Rated Current (Amps)	Min. Water Flow Rate (1/min)
				HF Peak (kVp)	DC (kV)			
DE125UJ502M-HF14K	(-750 ± 120) x 10 ⁻⁶ /°C	5000	± 20	14	16	2000	200	1.0
DE150UJ502M-HF16K	(-750 ± 120) x 10 ⁻⁶ /°C	5000	± 20	16	18	2000	250	1.5
DE150UJ502M-HF20K	(-750 ± 120) x 10 ⁻⁶ /°C	5000	± 20	20	22	2500	250	1.5

DIMENSIONS: inches

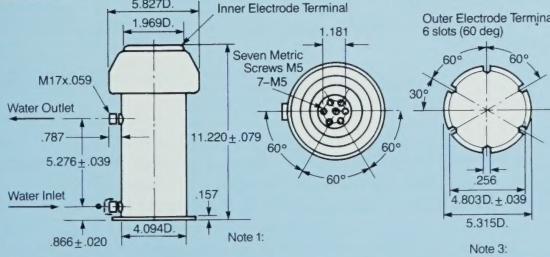
DE125UJ502M-HF14K



DE150UJ502M-HF16K

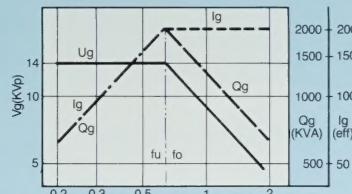


DE1502UJ502M-HF20K

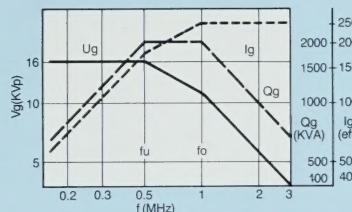


Limits—continuous values of voltage (Ug), current (Ig) and power (Qg) as function of frequency.

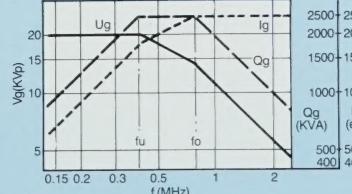
DE125UJ502M-HF14K



DE150UJ502M-HF16K



DE1502UJ502M-HF20K



Note 1: Axes of water nipple and 3 terminal screws in one plane within ±2 deg

Note 2: Accessories: 2 ferules 2 metric sleeve nuts M17

Note 3: Axes of water nipples are perpendicular to axes of capacitor in one common plane with ±2 deg

APPLICATION NOTES:

- Do not allow insulated portion to be exposed to water or moisture. In these cases, electricity may discharge and the ceramic may fail as a result of heat generation.
- Permissible electric power load is influenced by the quantity of refrigerated water. Keep the temperature of displaced water under 50°C at all times.
- Water pressure can withstand a peak of (6 kg/cm²). Use a maximum of (4 kg/cm²) when in continuous use.
- The metallic case for water-cooled parts is connected to the electrode.
- When temperatures go below freezing, there is potential for capacitor breakage due to ice. As a precaution, remove water.
- To protect the capacitor from accidents in the refrigeration system, incorporate protective measures such as a water pressure relay, running water relay and safety valve.



MURATA ERIE NORTH AMERICA

2200 Lake Park Drive
Smyrna, Georgia 30080
Tel: 404-436-1300
Telex: 26-1301
Panafax: 404-436-3030

Regional Sales Offices:

Northeast	— 617-245-7880	Southwest	— 714-832-9972
Southeast	— 407-644-0954	Northwest	— 503-646-4973
Mid-Atlantic	— 301-494-0405	Western	— 818-701-9702

Corporate Address: 2200 Lake Park Drive, Smyrna, GA 30080 (404-436-1300)